

Copyright  
by  
Fangjing Tu  
2015

**The Thesis Committee for Fangjing Tu  
Certifies that this is the approved version of the following thesis:**

**Frame Contestation between Government, Media and the Public  
The Controversy over Maoming PX Manufacturing**

**APPROVED BY  
SUPERVISING COMMITTEE:**

**Supervisor:**

---

Wenhong Chen

---

Karin Wilkins

**Frame Contestation between Government, Media and the Public**  
**The Controversy over Maoming PX Manufacturing**

**by**

**Fangjing Tu, B.A.**

**Thesis**

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

**Master of Arts**

**The University of Texas at Austin**

**December 2015**

## **Acknowledgements**

I am especially grateful to my supervisor, Dr. Wenhong Chen, who has provided me with valuable guidance and infinite support not only during the writing of thesis, but also throughout my entire master program. Without her enlightening instruction, insightful suggestion and impressive kindness, I could not have completed the thesis, my PhD application and many other things. I also want to express my great appreciation to my second reader, Dr. Karin Wilkins, for her interests in my study and her valuable advices. She taught me the importance of presentation of writing and the meticulousity in doing research, which are beneficial for my academic career.

A few faculty members also deserve special acknowledgement for their generous support. Dr. Reese introduced me to the beauty of framing and the importance of asking “So...What?”. Dr. Laura Stein, from whom I learned what is a good research question and how to propose that. Dr. Shanti Kumar who taught me writing is the best way of thinking through. And Dr. Maxwell McCombs, for exhaustible courage.

I would also like to acknowledge my friend Pei Zheng, Sara Liao, Shuning Lv and Xiaoqian Li for listening to and urging me of my projects. Thank all the professors, friends and classmates I met at University of Texas at Austin who pointed out and bore my mistakes, you make me a better person.

Most of all, thanks to my parents and my boyfriend who accompanied me nervously, yet, silently during my thesis writing. Loving you is my greatest power.

## **Abstract**

### **Frame Contestation between Government, Media and the Public The Controversy over Maoming PX Manufacturing**

Fangjing Tu, M.A.

The University of Texas at Austin, 2015

Supervisor: Wenhong Chen

This study integrates indexing, cascading activation, and integrative model to examine a central question in risk society: how social actors' definitions over environmental issues are contested and changed through their interactions in the public arena? Empirical evidence comes from the controversies over Maoming PX case (PX is chemical produced in the oil refining process and is used for the production of polyester clothes, plastic bottles and other daily necessities) where the definition of harm for PX project is ambiguous. News coverage and Sina Weibo posts about Maoming PX issue are collected and analyzed with framing analysis which bridges content analysis with interpretive analysis. A pair of merged frame and counter frame: science frame and public accountability frame, has been developed. Science frame attributes the responsibility to the public's ignorance about the low toxicity of PX and advocates the security aspect of PX projects. Public accountability frame blames on the poor credibility of local government. It appeals for public participation and information transparency on chemical projects. The study argues the government cascades its frames to the media. Media follows the government frame, but have different

strategies in selection and modification of government frames across time. The public is a strong competing force to government and media frame. However, their voice has a limited opportunity to be heard by the media and the government.

## Table of Contents

List of Tables .....	x
List of Figures .....	xi
Introduction.....	1
Chapter 1: Background on Paraxylene .....	7
The initiation of Maoming PX plant.....	7
Timeline .....	10
The online battle .....	12
Chapter 2: Social and Scientific Rationality on PX.....	14
Chapter 3: Literature Review & Research Questions .....	21
Why framing matters in PX issue? .....	21
Bringing hegemony back in.....	23
Conceptualization of framing .....	24
Models on framing contest.....	26
The event-driven model .....	26
The indexing model .....	26
The cascading activation model.....	27
An integrative approach .....	29
Theoretical framework and research questions.....	30
Chapter 4: Method .....	34
Data 34	
Conceptualization of the important terms.....	37
frame .....	37
Where to find frames?.....	37
Government frame .....	38
Media frame .....	38
The frame of online public opinions.....	39
Frame interaction .....	39

Frame competition .....	39
Potential Frames for PX issue .....	39
Science frame .....	41
Public accountability frame .....	41
Progress frame .....	42
Regulation frame .....	42
Riot frame .....	43
Protest frame .....	43
Coding Strategy .....	44
Inter-coder reliability .....	47
Limitation of research .....	47
Chapter 5: Result .....	49
The government and media's focus on PX across time .....	49
Government Frame .....	50
Media Frame .....	51
The interplay between government and the media .....	52
Phase II .....	52
Phase III .....	54
Phase IV .....	56
Online public opinion frame .....	57
The interplay between online public and government/media .....	58
Phase II .....	58
Phase III .....	59
Phase IV .....	61
Conclusion .....	62

Chapter 6: Discussion .....	65
Appendix A: Coding Rules for Frames .....	69
Appendix B: Descriptive Tables .....	72
References .....	74

## List of Tables

Table 1 Frequency of Newspaper Coverage by Attribute in Different Phases (%)	50
Table 2 Cross-tabulation of Dominant Frames and Media Types (%)	52
Table 3 Cross-tabulation of merged dominant frame and national-party media or not by different phases (%)	56
Table 4 Originality of News Article by Media Type (%)	56
Table 5 Originality of News Article in Different Phases (%)	57
Table 6 Cross-tabulation of Merged Frames in Different Phases for Public Opinion (%)	58
Table 7 Cross-tabulation of Dominant Frames in Different Phases for Public Opinion (%)	59
Table 8 Mentions of Quotes from Media/Public Opinion in Different Phases (%)	62
Table 9 Inter-coder reliability by variable	72
Table 10 Dominant frame, merged frame and counter frame for the government	72
Table 11 Dominant frame, merged frame and counter frame for media in general	73

## **List of Figures**

Figure 1 Theoretical framework .....	31
Figure 2 Frequency of news coverage on PX between March 18-April 18.....	46

## **Introduction**

This study was initiated based on a considerable research interest in how different social actors form perceptions of China's environmental issues. I am especially curious about the answers to the following questions: How do the interactions between actors shape their perceptions? What is the role of power in this process? These questions should be examined in the framework of risk society; due to the constructive nature of environmental issues, our perceptions of them depend on the social contestation of the definition of environmental risk.

Beck described risk society as “a systematic way of dealing with hazards and insecurities induced and introduced by modernization” (Beck, 1992: 21). Risk—a “latent side effect” (p.19) of the technological development associated with the industrialization process is out of human's calculation and management. Therefore, before risk results in harm, it remains invisible and operates only in our perception, in other words, as part of a social construction. In this form, risk can be defined, exaggerated, or minimized according to personal or group interests. Thus, the accepted definition of risk determines people's perception of it. Risk definition is especially important, since it maps out the central problem—identifying responsible parties—the remedying of which is critical in order to carry out future actions. Therefore, defining risk becomes a central issue for various social actors to clash over. Power, of course, is a principal weapon in this contestation. The PX project is a typical type of risk. Although PX is a common chemical used in the production of daily necessities, such as plastic bottles and polyester clothes, the PX projects have received resistance from local residents. The reasons for local repugnance lie in the ambiguous definition of PX toxicity and the undetermined harm of PX production and management process. Therefore, it would be interesting to analyze how three groups of

social actors: the government, the media and the public, interact and compete for the definition of PX.

While useful, risk society theory has been criticized as relying on “sweeping generalizations” that lack empirical examination (Leiss, 2008; Cottle, 1008). Framing that has a high degree of similarity with risk definition is the best approach with which to navigate the discussions on risk definition. We can even say that risk definition is embraced in the framing process. First of all, as with risk definition, framing is inherently a power contest. It looks at the ways that social actors strategically manipulate their ideas in order to achieve their political and communicative goals, and to exert power and influence. Secondly, framing is also about the construction of meaning (Gamson & Modigliani, 1998; Tuchman, 1978; Benford & Hunt, 1992). Finally, framing “suggests what is at issue” (Gamson & Modigliani, 1989: 3), defines roles for social actors (Hertog & McLeod, 2001), and allows actors to interact and “to yield organized ways of understanding the world” (Reese, 2001:11).

The indexing, cascade activation, and integrative approaches are three suitable models to use in analyzing framing and political power. The latter two are incorporated in the theoretical framework of this study. The indexing model illustrates the media’s habit of relying on political officials as sources of information and opinion. In this model, media workers simply replicate or transport elite viewpoints by way of media coverage (Bennett, 1992, 1994; Zaller & Chiu, 1996). Entman’s (2004) cascading model describes how ideas and opinions are transmitted like a waterfall that flows from another source—the White House—down to each level in the cascading system. The model also predicts why and to what extent the counter-frames held by the lower level in the system are contested or ignored the elite frame. The integrative approach (Matthes, 2012) does not describe the direction of power flow in an issue-framing cycle. Rather, it adds to the previous two

models by highlighting the importance of testing the interactions among three groups of actors: political actors, media actors and citizens. It especially hypothesizes about citizens' ability to influence the views on political and media actors.

The theoretical framework of this study was developed based on the integrative and cascading activation models. It was designed in order to determine the interplay among three important actors: the government, the media, and the online public. Borrowed from Matthes' integrative model (2002), frame selection and modification, as well as consistency, dynamics and competition are four important elements for conceptualizing the interactive framing process in this study. First of all, frame selection and modification suggest that each social actor has the autonomy to select, highlight, or ignore some frames over others. Therefore, it is important to examine how an individual or a group accepts or opposes a certain frame, and to what extent these frames remain consistent or show internal conflict within the group. Secondly, frame consistency stresses that the framing effect depends on the repetition of a constant pattern, and it is crucial for a frame to be consistent over time. In fact, time is a crucial focus in this interactive process—especially in this study. Therefore, the study asks the following questions:

RQ1: How does government frame the PX issue, and to what extent are the counter-frames maintained or changed over an extended time period?

RQ2: How does media frame the PX issue, and to what extent are the counter-frames maintained or changed over an extended time period?

RQ3: How does the public frame PX issue, and to what extent are the counter frames maintain or change over an extended time period?

Thirdly, frame dynamics suggests that framing is an active process underlining the back and forth influence between social actors. Connecting this principal with the cascading activation model, the framework in this study suggests that the frames possessed

by administrations can cascade down to media outlets. Yet, during this process, journalists are not passive, and can highlight or ignore specific aspects of elite frames. The public may selectively accept certain parts of the administration's or media's frame, or even construct a counter frame. Finally, frame competition, is a form of frame dynamics. It addresses the fact that framing is a contested process, and all political issues are open to several interpretations or frames. "There is a struggle over meaning, a battle to define a dominant interpretation of an issue" (Matthes, 2012: 252). Therefore, this study seeks to research this contested process by posing these additional questions:

RQ4: How is the discourse among the government, the media and the public contested, and how does it change over time?

RQ4a: To what extent do media frames compete or interact with government frames?

RQ4b: To what extent do public frames compete or interact with government frames?

RQ4c: To what extent do public frames compete or interact with media frames?

The study is unfolded by the following organization and structure. Chapter 1 aims to justify the representativeness of Maoming PX case among environmental issues and gives a contextualized introduction to it. This particular case of PX was chosen because it is one of the most well-known, as well as troublesome environmental issues in China. Since Xiamen residents successfully shut down a potential PX project through demonstrations in 2007, the whole China has been trapped in a negative cycle of protest and suspension with regards to PX projects. Understanding the locus of the problem, as well as the communication patterns among the government, the media, and the public, has empirical implications for solving the PX issue in China.

Following this general background introduction of the Maoming PX case, Chapter 2 puts the PX issue under the lens of risk society theory and claims that it is a suitable means by which to explore the ensuing power contest. The PX issue is a typical risk, the definition of which is unclear (in both scientific and social realms), yet extremely important. In the Maoming incident, the definition of PX as a hazard has been highly contested among social actors. Therefore, the Maoming PX issue is an ideal case through which to approach the theoretical and empirical questions of this study.

Next, Chapter 3 reviews the literature on framing and political power, and based on these, theoretical frameworks are constructed. Due to the quantitative change, framing has been removed from its traditional place in hegemony and political power. This study aims bring the focus of power back to framing studies, and specially on framing processes in which different social actors are interplaying. After critically reviewing four models of framing and political power—the event-driven, indexing, cascading activation and integrative approaches—the study raises its own framework with which to examine the framing dynamics among the government, the media, and the public.

The specific methodological principals for this study are then introduced in Chapter 4. The framing scheme that bridges content analysis with interpretive analysis is employed in this part of the study. This chapter starts by addressing the data and how they were collected. Specifically, two sets of data were collected: one consisted of media data collected from the Duxiu database, the other of online public opinion data that was collected from Sina Weibo. This chapter then moves on the core section of the framing study: identifying the frames for PX issue. The study follows the framing package approach (Gamson & Modigliani, 1989), combining deduction and induction methods to identify the frames, resulting in three pairs of frames and counter-frames for analysis. The last section

of this chapter addresses specific coding strategies; coded variables are also explained and listed.

Chapter 5 closely investigates the data and reports the findings with regards to the proposed research questions. Chapter 6, the discussion section, recalls the major findings in previous chapters and explains those findings in the context of theories. This chapter further discusses the contribution of this study to the framing literature and to understanding environmental issues in a larger sense.

## **Chapter 1: Background on Paraxylene**

Anti-paraxylene (PX) protests first broke out in Xiamen, China in 2007; the residents of Xiamen succeeded in removing a PX plant through demonstrations and protests. PX projects in other cities in China, including Dalian, Ningbo, Kunming, Jiujiang, and Pengzhou, also encountered local repugnance. Whenever such protests have occurred, the local government immediately promised to rescind the project. The result is that the nation is now trapped in a negative cycle of protests and suspensions of PX plants. When protests against chemical projects occurred, the local officials were facing the pressure to maintain social stability, which is crucial for securing their position. However, in past PX issues, the local officials failed to sustain the pressure and all surrendered to the public anger by taking the over-simplified measure of halting the projects, regardless of the projects' benefit to the local economy or the security in the production process. A lack of communication between the local governments and the public, as well as poor official credibility, constitute the root of the local repugnance toward PX projects. The Maoming PX issue examined in this study is the most recent PX controversy in China that bears the above similarities with past PX issues. Thoroughly examining the Maoming PX controversy helps in understanding the perceptions of the different actors in China's environmental issues.

### **THE INITIATION OF MAOMING PX PLANT**

The PX controversy examined in this study occurred in Maoming, a city located in Western Guangdong. Guangdong, a province in Southern China, now possesses the largest provincial economy in China due to the reform and open policies in the early 1990s. The annual gross domestic product (GDP) in Guangdong has reached 1.1 trillion dollars (National Bureau of Statistics of China, 2014), which is comparable to that of South

Korea's GDP (Forbes, 2014). However, inside the same Guangdong, the development between different regions is extremely unbalanced. Among the four regions of Guangdong (Pearl River Delta, Eastern, Northern, and Western regions), the Pearl River Delta is the wealthiest region with the highest marketization level. The Pearl River Delta has the most complete market system throughout China since it has served as the "experimental field" of the reform and opening-up policy for more than 30 years (National Development and Reform Commission, 2008). In comparison, the western areas of Guangdong, where Maoming is located, occupy almost one fifth of the whole province area and population, but they only bear 7.02% of the total industrial output value in Guangdong and 11.53% of the provincial GDP (Wen, 2014).

To offset this gap, in October 2009, the provincial government released a document, *Guidance on the Promotion of Rejuvenating Western Guangdong*, aiming to strengthen economic development in Western Guangdong, including the cities of Maoming, Zhanjiang, and Yangjiang. In December 2009, the *Economic and Social Development Plan of Western Guangdong* and the *12th Five-Year Plan National Economic and Social Development of Maoming* were introduced to propel Western Guangdong forward to an excellent petrochemical industrial base with a 228 billion Yuan-output value petrochemical industrial cluster. This decision was based on the Maoming reserves that have the largest amount of oil shale in China. More specifically, it was planned that, until 2015, the production ability should reach 30 million ton per year oil refining, 2 million ton per year ethylene, and 1 million ton per year aromatic hydrocarbon, which includes 0.6 million ton PX device.

Before this PX project, several other petrochemical projects had already been built (Anonymous, 2014). The PX project had been listed as one of the most important projects in building the petrochemical base in Maoming's 12th Five-Year Plan. The Maoming local

government and the Maoming branch of Sinopec jointly fund the Maoming PX (China Daily, 2014). Sinopec is a Chinese state-owned oil giant and is one of the largest oil refinery enterprises in China. The Maoming branch of Sinopec is a strong branch under Sinopec. The annual profit for Sinopec exceeded 100 billion dollars, and the annual paid tax was more than 20 billion dollars, which is a giant component in Guangdong's tax income. The project included 600,000 ton per year PX device, an investment of 3.5 billion dollars. After it is established, it is expected to generate 1.2 billion dollars in the future. The project was planned to be built inside the ethylene factory of the Maoming branch of Sinopec. Compared with past PX projects, the Maoming PX plant does not have the issue of land expropriation or the problems of relocation and compensation for the residents. The project was approved by the National Development and Reform Commission in October 2012 and was included in China's 12th Five-Year Plan.

This project has been brewing since 2011; the 12th Five-Year Plan for Maoming Economic and Social Development<sup>1</sup> and the Important Project List for Maoming 'Twelve Five' Plan both mapped out the construction of 0.6 million ton PX device, which should have been completed between 2011 and 2014. However, the project has not been processed as planned. According to employees of this project, the project is still in its early stages (Anonymous, 2014). It has not yet participated in the environmental impact assessment.

---

<sup>1</sup> In October 2010, the Communist Party of China's (CPC) Central Committee approved the guiding principles of China's 12th Five-Year Plan for National Economic and Social Development (FYP) (2011-2015). The 12th FYP's guiding principles will promote the government's focus on "inclusive growth," which means ensuring the benefits of economic growth are spread to a greater proportion of Chinese citizens. The plan's key themes are rebalancing the economy, ameliorating social inequality and protecting the environment. (Cited from "China's 12th Five-Year Plan-How it actually works and what's in store for the next five")

## **TIMELINE**

As illustrated in the beginning of this chapter, PX controversies have frequently occurred in China during the past years. Learning from the past protests against PX projects, Maoming officials had predicted the public concerns toward the PX project to be constructed in their city; the officials executed preventions to minimize the negative political impacts. In early March 2014, the government initiated various ways to introduce the PX project to the public, such as spreading media coverage about PX, organizing scientific lectures to introduce PX to the public, and asking citizens to sign consent forms for constructing the PX project.

Local officials also took advantage of major local websites and the three mobile carriers (China Telecom, China Unicom, and China Mobile) in controlling the flow of information. Media propaganda was enhanced to sway public opinion toward accepting the construction of PX (Anonymous, 2014). On March 18, 2014, the coverage of the PX project began to appear frequently in the media (Zhou, 2014). More than ten articles have been published to illustrate that the application of PX is close to people's daily life, refuting the concerns and misunderstandings toward PX. These articles also mentioned that other countries, such as Korea, Japan, and Singapore, are increasing PX production; therefore, China, as the largest consumer of PX, needs to advance the PX industry.

However, the propaganda followed a top-down pattern. A real communication channel between the government and the public was not built. During this process, a suggestion of inviting local residents to visit the production floor of the PX factory was made; however, the suggestion was not taken. Such suggestions by petromechanical experts, such as Yong Jin, may enable understanding toward PX and may remove the residents' concerns. Making the situation worse, the government required the local students, the educational system personnel, and petroleum and chemical system employees

to sign consent forms. The consent form requires that people, “[S]hould not listen to, believe, pass on or publish any word that may preclude the construction of PX project, never organize or participate in any activity that precludes the construction of PX project” (Wang, 2014). According to the students and staff, people who refused to sign the form were negatively impacted in their entrance exams to colleges or in their career promotions. This imposed consent form did not achieve the expected public support; on the contrary, it generated a feeling of antipathy and distrust among the public.

Very few news articles explained what spurred the protests. One article stated that maybe the residents were concerned that the PX project may lead to environmental pollution (Zhou, 2014). As claimed by one protester, the petrochemical projects built before PX projects have already affected the air quality. He believes that the smell in the air and his rhinitis are due to the petrochemical project. On the morning of March 30, 2014, thousands of protesters took to the streets to protest against the construction of the PX plant in Maoming. In the afternoon, a few protesters started throwing stones and plastic bottles, damaging public facilities. Subsequently, violence between the police and protesters broke out. Fifteen people were injured, including four policemen, according to a government report; fortunately, no one was killed (The Information Office of Maoming, 2014). The police investigated 44 people and detained 18 people for disturbing the social and public order (Ye, 2014). The protest in Maoming ended on April 2, 2014. However, at the same time, on April 1 to April 2, the protests spread to Guangzhou and Shenzhen (Anonymous, 2014). On April 3, 2014, the Maoming local government announced in a press conference that no timetable had been given for the PX plant’s construction and that the authorities would not proceed without consulting the public (Ye, 2014).

## **THE ONLINE BATTLE**

After the protest, the contention of the PX plant spread from offline to online. Photos spread on Chinese social media showed that the police used tear gas to fire at the protesters. Batons, burning cars, and injured protesters were also captured in the photos (BBC, 2014).

While offline protest was taking place, there was another battle happening online started from March 30. It was called a “war of words” (Zhai, 2014) over the scientific definition of PX started between Maoming residents and some chemistry students in Tsinghua University on Baidu Baike, a public encyclopedia similar to Wikipedia, funded by the most popular Chinese search engine Baidu. The records of Baidu Baike showed that, the two groups had repetitively revised the entries of PX between “high toxicity” and “low toxicity” for 36 times. On April 7 the group behind the “high toxicity” gave up, some of whom were identified as Maoming residents, and the website operators blocked further changes to the entry, keeping PX as “low toxicity”.

The battles on Baidu Baike then attracted comments from state-owned media, such as People’s Daily and China Central Television (CCTV). People’s daily described what Tsinghua students did was a “science defense”, praising them for “safe guarding the truth” and preventing rumors from further diffusion. China Central Television ran a four-minute focus on this issue during its thirty-minute evening news broadcast. In that segment, it quoted words from an associate chemistry professor at Tsinghua University saying that, PX is a normal chemical and the chemical toxicity for PX is indeed low toxicity and is close to that of alcohol. He also claimed that people should treat PX with the same attitude as they did with petroleum. Following that, there was a wide discussion of PX manufacturing on both traditional media and social media. Some media have adopted the popularization of science frame, stressing the low toxic nature of PX. Other voices took its

counter frame, such as public accountability frame, criticizing that the science frame ignores the real issue of the PX manufacturing. They argued that the risk of PX itself is only one aspect of the matter, whether Chinese authorities could safely inspect and operate such a project matters more. BBC commented that the state-owned media's selective use of scientific knowledge "misguide the public" according to them. They also believed that by citing Tsinghua students as the authority of science, the state-owned media are actually doing a concealed propaganda. Emphasizing on the contention of toxicity direct the public attention from other important issues, such as how government can enhance safely management over PX plant and its waste, and how can local governments promote the communication with the public (Zhai,2014).

## Chapter 2: Social and Scientific Rationality on PX

Paraxylene (PX) is a chemical that is an indispensable component in producing daily necessities, including polyester clothing, plastic bottles, capsules, and building materials (Li, 2014). It is a byproduct of the oil-producing.

In recent years, PX's toxicity has been disputed. A text message (translated below) labeling the PX project as "high toxic" was widely circulated among Xiamen, China, residents, marking the beginning of the dispute. The text was also one of the causes of the first prominent PX protest, which occurred in 2007 in Xiamen.

Xianglu Group joint venture has already begun investing in a benzene project. Once this kind of heavily poisonous chemical is produced, it will be like that Xiamen is hit with an atomic bomb, and Xiamen people's lives will be full of leukemia and deformed children. We want to live; we want to be healthy! International organizations require this sort of project to be developed a distance of 1000 kilometers outside of a city. Our Xiamen city is just 16 km away! For our children and grandchildren's health, send this message to all your Xiamen friends! ("SMS Texts Energize a Chinese Protest", June 1, 2007)" (Yu & Zeng, 2010:230)

In the text message, several points were found to be rumors. First, the PX project is not a benzene project. Although PX is in the benzene family, its toxicity is far less than benzene. Second, the description of "heavily poisonous" is incorrect. Third, the text message compares PX to an atomic bomb that will result in leukemia; this is too alarmist. PX is categorized as an A4 in carcinogenic effect, which means that PX is not classifiable as a carcinogen for humans or animals, according to the Material Safety Data Sheet (MSDS), which is authorized by the American Conference of Governmental Industrial Hygienists. In comparison, petroleum belongs to the A3 chemical carcinogen group (confirmed for animals but not classifiable for humans). Therefore, even though PX is toxic, its toxicity is lower than petroleum that contains PX (International Chemical Safety Card, 2014). Furthermore, the text's claim that the PX plant should be built more than

1,000 kilometers away from the residents' was invented; international laws have no restrictions of such distance. The *Technical Guidelines for Environmental Impact Assessment Atmospheric Environment* states that there is no constant value for the impact distance of the PX project, and it is required to calculate an independent distance based on the calculation of an unorganized discharge of pollutants. Moreover, examples around the world reveal that PX projects have been built close to urban districts. For instance, the distance between the urban district and the PX factory is 1.2 kilometers in Houston, 8 kilometers in Rotterdam, Netherland, and 4 kilometers in South Korea. Other examples show that the PX project is fairly close to local communities; in Singapore, it is only 0.9 kilometers, and there is only a highway between the PX factory and the local community in Japan.

In recent years, there have been several protests against the Xiamen PX project. Recently, in the Maoming PX case (and maybe in the beginning of Ningbo's case), considerable news has been published to commend PX, claiming that PX has a "low toxicity." The *People's Daily*, which represents the government's voice, claimed that the toxicity of PX equaled alcohol. As covered in the newspaper, the scientific community seems to stand with the government's voice, supporting the low toxicity view. Most of the experts and media that support low toxicity PX cited the evidence of the median lethal dose or concentration/LD50, the dose of a toxin to kill half of a tested animal population. The higher the acute toxicity, the lower the LD50 value. In the PX case, the Tsinghua students and most of newspaper articles referred to LD50 to claim its low toxicity.

However, the scientific definition of PX's toxicity is not as clear as the low toxicity supporters' claim. In the MSDS (ASP, 2006), it states that contact with or absorption of PX has potential health effects:

May cause central nervous system depression. May cause liver and kidney damage. Aspiration hazard if swallowed. Can enter lungs and cause damage. Causes respiratory tract irritation and eye irritation. Prolonged or repeated contact may dry the skin and cause irritation. May be harmful if absorbed through skin or if inhaled. This substance has caused adverse reproductive and fetal effects in animals.

Can the above statement be understood as low toxicity? Based on the previous inconsistent views over the toxicity of PX, it is worthwhile to ask how to judge the toxicity of PX. Should the PX issue simply be considered as a scientific problem?

First, labeling PX with a tag of high or low toxicity oversimplifies a complex problem; this will result in misunderstandings. From the perspective of toxicology, a series of levels should be measured in deciding the toxicity of compounds. Toxicology examines the adverse effects that external chemical, physical, and biological influences have toward the living organisms and ecosystem. There are several common standards in toxicology to judge the effect of an external influence, including “acute toxicity, chronic toxicity, carcinogenicity, mutagenicity, teratogenicity, irritation and target organ toxicity” (ASP, 2006). As stated above, the experts and media who advocate that PX has a low toxicity cite the evidence of the median lethal dose or concentration/LD50. However, the LD50 only measures the acute toxicity level of a chemical. Apart from the acute toxicity, chronic toxicity is also an important measurement for toxicity; chronic toxicity regards the harmful effects after a long exposure to a chemical. Chronic toxicity considers another two factors that are missing in the acute toxicity level. One factor is the concentration. For instance, even if salt were overconsumed, it would be regarded as poison. Another factor is the exposure time; a short exposure may not result in danger, but a long exposure may.

A chemical’s danger is multidimensional. Apart from the toxicity, there are two other standards used in judging the danger. One factor is physical danger, which includes the chemical’s explosive possibility or stimulation to flammable gas. The other factor is

the chemical's impact on the environment, including pollution on aquatic environments and the ozone layer. Therefore, simply focusing on the toxicity muddies the PX debate.

Moreover, even though PX itself is an environmentally friendly element, its byproducts made in the PX production process can be harmful. The PX production process creates ten byproducts, including benzene, methylbenzene, and ortho-xylene. Benzene is a highly toxic, carcinogenic, and teratogenic chemical, according to the Globally Harmonized System (GHS) classification standards for chemicals (2012). In a PX project similar to the one in Maoming, the production of benzene can reach 200,000 tons; damage to people and the environment may occur. Considering this huge amount of benzene byproduct, it is understandable that Xiamen protested against the PX project in 2007. People called it a benzene project instead of a PX project.

The complexity in scientifically determining the danger of PX leaves room for social rationality in the issue. The public believe there are too many uncertainties involved in PX issues, so regulation and public accountability should be the core in defining this issue. In this sense, the government is responsible for supervising the environmental assessment of the project and the daily management of it, but the government should allow public involvement in the whole process instead of imposing the project on the public.

The above reality represents the characteristics of a risk society. According to Beck (1992:21), a risk society is a distinctive form of society with “a systematic way of dealing with hazards and insecurities induced and introduced by modernization”. The technological success of modernization minimized the scarcity problem that is central in the classical industry society, but it brought about its “latent side effects”—risks (Beck, 1992:19). Risk, such as environmental issues, nuclear crises, and financial difficulties, is a consequence of modernization; it comes in the form of catastrophic and permanent harm to human society and the biosphere. However, risk itself is also a manufactured concept.

Since risk operates out of the physical perception, it is hard to assess, calculate, and prevent. Therefore, risk can be exaggerated or minimized according to the social actors' interests, and it becomes discernable only in knowledge, such as in scientific calculation and media coverage (Beck, 2009:20).

Scientific rationality is in rupture in a risk society (Beck, 1992). First, given the imperceptible nature of risk, the measurement of risk is traditionally the experts' or scientists' job; thus, people rely on scientists for risk knowledge. However, the uncontrollable nature of risk has resulted in a break in science's monopoly on rationality, which created an incorrect risk assessment, leading to the individual's distrustful sentiments toward the intellectual milieu. As Beck wrote (Beck, 2009:54),

Neither science, nor the reigning politics, nor the mass media, nor business, nor the legal system, nor even the military, is in a position to define or control risks in a rational way. As a consequence, people are thrown back onto themselves, they are alienated from expert systems but have nothing else instead.

Beck also emphasized the importance of the cultural perception of risk and highlighted the invisible nature of risk's open space for its representation of social definition. Laypeople may gain their perception of risk from their everyday experience (Tulloch & Lupton, 2001). Second, in a risk society, scientific facts and decisions are not restricted to academia. It is a coproduction of the bureaucratic, political, and industrial process. The acceptable pollution level, which Beck called a "phony trick" (1992:64), is an example. Actors who draft acceptable levels "permit the mission of toxin and legitimate it to just that limited degree." In other words, they legitimize the action to poison nature and people, precluding the occurrence of the worst condition. Therefore, the acceptable level is not an objective product from a scientific laboratory, but it is a negotiation among different interest groups, including academia, government, and industry.

Beck mentioned some gaps and dislocations between the two kinds of rationality, sometimes they are not discussed in the same level of thinking. For example, technicians sometimes tangled with questions that the protestors are not care about. Yet, the real concerns raised by the public may be ignored by technicians. In the PX case, there was also such a fissure between social and scientific rationality. When talking about toxicity, the protestors were expressing their distrustful sentiments toward government's ability in regulating the PX production process. They were advocating for the right of public to involve in deciding social and political issues. However, some newspapers talked past protestors' claim and adopted a scientific rationality - headlined the "low toxicity" nature of PX.

Beck later declared that the social and the scientific rationality are interpenetrating, the common force of which contributes to the greatest objectivity of risk. On one hand, social concerns of risk rely on scientific findings; and on the other hand, scientific arguments on risk must take social expectations, evaluation, and influence into account. As Beck addressed "[T]he greater and more objective a risk appears, the more its reality depends on its cultural evaluation. In other words, the objectivity of a risk is a product of its perception and its staging (also by experts)" (Beck, 2009:13).

However, Cottle pointed out that Beck failed to make it clear whether risk definition should be limit to the intellectual milieu which is dominated by scientists and expert knowledge (scientific rationality) or that lay people and media can also participate in assessing risk with social rationality. Beck also missed to address the role of media in defining risk. Media is the cultural eyes of normal citizens and the cultural 'perception' is embodied in the words and pictures in mass media. Cited the media coverage on Asian tsunami catastrophe in December 2004, Beck highlighted that media made the environmental threats visible, enabling the "blind citizens" to be aware of the environment

they inhabit, and may even promote them to “regain their autonomous judgment” (Beck, 2009: 42). Global risk cannot be predicted by scientific calculation, and the incapability of risk calculation result in the blurred boundary between the real risk and cultural perception of risk. Beck admit that people have subjective and individual perception of risk, but that is largely irrational and prejudiced compared with the experts’ scientific analysis (Beck, 2009:12).

Therefore, this study focuses on the completion between different social and political actors (especially government, media and the public) on the defining PX issue, in order to better understand the relationship between scientific and social arguments, as well as the power relationships in defining a risk.

### **Chapter 3: Literature Review & Research Questions**

The core concept for risk definition lies in the distribution of power. So does framing.

Different from risk definition which lacks the test of empirical studies, framing has a long research tradition. Therefore, this chapter employs the tradition of framing to study the PX issue. Due to the quantitative change, framing has been pulled out of its roots in hegemony and political power. This study aims to focus on power in the study of framing and especially focus on the framing process where different social actors are related with each other. After critically reviewing four models of framing and political power: event-driven, indexing, cascading activation and integrative approach, the study tries to examine the framing dynamics between government, the media and the public.

#### **WHY FRAMING MATTERS IN PX ISSUE?**

Similar to the risk definition, the nature of power lies in framing. Weber (1987) defines power as the capability that an individual or group has to achieve its own will regardless of the resistance from others. A common approach to reaching this goal in a non-coercive (or a lesser coercive) political system is getting people's support or tolerance by "telling people what to think" (Entman, 2007). In order to do this, actors should suggest what is at issue, strengthen their arguments and eliminate the opposing ones. Framing is the technique, the process and the logic that political actors adopt to influence people on how to think about certain issues. Hertog and McLeod (2001:24) suggest that "frame can structure the world since it determines what content is of significance, defines the role of individuals, groups and organization and outlines the ways that beliefs, values and actions are related". Moreover, framing defines a dispute which people have ideal of its occurrence (Tankard, 2001).

The normative question of this study is how social actors' perceptions over environmental issues are formed and shaped through their interactions in the public arena? In terms of the tradition of framing, this question can be paraphrased as how the frames are held by varied social actors which contest against each other? Different from traditional framing, this study tries to understand framing in the broader social and political arena, which has been lacking study for a long time (Carragee & Roefs, 2004).

There are three approaches to framing research, that is, the cognitive approach, the constructionist approach, and the critical approach (D'Angelo, 2002), among which the critical approach has been long neglected. The cognitive approach pays attention to the psychological processes of how framing influences social actor's perception and cognition (e.g. Kahneman & Tversky 1979, Shah et al. 2010). It has now been the most prominent approach, since it goes along with the media effect research tradition and quantitative methods. According to the constructionist approach, political elites create and interpret meaning of some social issues (e.g. Ettema & Peer 1996, Gamson & Modigliani, 1989). Comparatively, the critical framing perspective notes that framing is a tool used by powerful elites (e.g. Carragee and Roefs 2004). The core of critical framing holds that power focuses on how actors in power use framing techniques to exert influences on others. Although hegemony and broader political power are important to the framing research (Reese&Lewis, 2009), recent framing research have failed to cover it (Carragee & Roefs, 2004). The reason for that is the problematic definition of framing, the failure to employ sponsorship in framing, and the reduction of framing analysis to the media effect (Carragee & Roefs, 2004). Therefore, this study tries to bring the hegemony back in and explore the power relationship between social actors through framing analysis.

## **BRINGING HEGEMONY BACK IN**

Framing and hegemony are a perfect couple. On one hand, framing is inherent in political power and hegemony. Gitlin (2001) first introduces the concept of framing to mass communication research through talking about Gramsci's concept of "hegemony". The following sentences reveal that framing is inherently related to hegemony and power. "[T]hose who rule the dominant institutions secure their power in large measure directly *and indirectly*, by impressing their definitions of the situation upon those they rule, and, if not usurping the whole of ideological space, still significantly limiting what is thought throughout society" (p. 10; italics in original). In the above sentence, Gitlin highlights that hegemony is embedded in the "direct or indirect" implementation of framing. In other words, framing enables the ruler to strengthen their voices and eliminate the opposing one's "without showing an explicit bias" (Tankard, 2001). On the other hand, framing provides them the opportunity to embody the abstract ideology. Ideology used to be the subject that drew the attention of critical theorists, since it was difficult to be tested in empirical studies. However, framing makes it possible for quantitative scholars have examined it (Tankard, 2001). "Frame, as the imprint of power, is central to the production of hegemony" (Carragee & Roefs, 2004: 222). Therefore, framing analysis can help people understand the production and interpretation of hegemonic ideologies as well as the distribution of power better.

The ruling class maintains its domination through imposing ideology (e.g., their preferred definition of situations, values and beliefs) on the subordinate class. These ideologies penetrate into everyday practice and "common sense" which people apply to comprehend the world. The ruling class even tries to make them become common sense (Thompsons, 1991). In this way, the dominant class can create a ideological consensus among the public so as to secure stable social order. However, Ramond Williams

emphasizes that hegemony “does not just passively exist as a form of dominance. It has continually to be renewed, recreated, defended and modified. It is also continually limited, altered, and challenged by pressures” (1971:112). He criticizes the classic Marxist’s tradition, which Gramsci has inherited, that the ideal that base (mainly refer to economic activities) and super structure (cultural and ideological systems) are dichotomous and one reproduces or predicts the other is too deterministic in explaining the complexity of social forces. Hegemony should not be static. It is not only under the manipulation of the dominate class. Instead, it should be controlled as well as resisted (Williams, 1971).

The technological development proves that hegemony is not a static stage. In the network society, hegemony is dynamic Reese points out that when hegemony meets network society, its influence is lessened. The one who controls the means of (cultural) production is uncertain. And openings has been provided by institutional shocks and public activism in the networked, civil society (Reese, 2009).

Based on William’s interpretation of hegemony, framing is not a tool restrictively used for top-down domination. It is a tool employed by different social actors. Therefore, this study has combined the constructionist perspective and the critical perspective. It highlights the importance of power in framing but admits its availability for all social actors at the same time. Moreover, the study also defines framing not as a static stage but as a dynamic process of frame building, frame interaction and frame contest, where frames are formed and changed over time (Scheufele, 1999; Van Gorp, 2010).

#### **CONCEPTUALIZATION OF FRAMING**

Gamson notes that there’s no intrinsic meaning for a social fact. The meaning lies only in the process that it is organized, selected and emphasized. He defines framing as “a central organizing idea for making sense of relevant events and suggesting what is at

issue.”(Gamson 1989, p.157). In this way, framing is not only a word, a structure, but an organizing principle or a process through which people interact with themselves, with others and gain perception of the society. Gamson’s definition works well conceptually as a constant guidance for the framing research. However, in terms of operationalization, Entman has a clear-cut definition. He concludes that framing “is to select some aspects of a perceived reality and make them more salient in a communicating text, so as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation” (Entman, 1993, p. 52). This definition illustrates that framing is a way to construct stories. It, emphasizes certain aspects of issues and informs the public of how to understand and react to it.

Previous studies have distinguished different conceptualizations of framing from different abstract levels. For example, Iyengar’s framing research (1990, 1994&1996) focuses on who should be responsible for influencing people’s judgment towards an issue. He has made use of two categories, that is, the thematic frame and the episodic frame to analyze how television frames poverty. Besides, thematic frame contains news coverage about “general trends” like public policy and social and political structures. For example, this frame attributes poverty to society at large. In comparison, episodic frame would lead people to regard poverty as an individual problem after reading the news about a series of personal sufferings under the state of distress. He criticizes that media fails to define social issues political which leaves room for public institutions to evade their responsibilities (Iyengar, 1994). Frames that specifically address the characteristics of a certain issue is called issue-specific frames. Issue-specific frames have low generalizing ability. After generating one issue, it will be hard to analyze other issues. Compared to the generic frame (De Vreese, 2004), issue specific frame is more abstract, which can be applied to multiple topics. Typical generic frames includes conflict frame and economic consequence frame

which have been discussed in many previous studies. Conflict frame emphasizes controversy and disagreement while the economic consequences frame economic implications and considerations. This study will focus on generic frame because it is more abstract, which is closer to Gamson's framing definition, an "organizing idea".

## **MODELS ON FRAMING CONTEST**

There are several models in framing tradition that illustrate the process of framing contest and the patterns of political power distribution: the event-driven model, the indexing model, the cascading activation and the integrative model.

### **The event-driven model**

When reporting some dramatic events, news media comparatively tend to provide more critical coverage (Bennett & Lawrence, 1995; Lawrence, 2000; Molotch & Lester, 1974). Instead of considering news as objective, Molotch and Lester (1974) think that news is constructed reality, a purposive activity constituted by news promoters, assemblers and consumers and the production of news is strongly influenced by political power. Molotch and Lester (1974) conclude that only in reporting accidents and scandals (which Lawrence calls them event-driven news), journalists would not follow the institutionalized news-making routine and rely less on official news framing. However, empirical studies show that even in reporting event-driven news, media still shows deference to political power and choose not to tell opposing stories until the official source tell them to do so.

### **The indexing model**

The indexing hypothesis was first put forward by Bennet (1990) to illustrate media's habit of relying on political officials' resources and opinions to report news. Political elites who are in favor of liberal democracy typically have varied opinions on important social and political issues. The reporting angle of news are directed by the

debates in the elite circle. In other words, journalists regard the elites' debates as the main index and the guidance of their news writing. Therefore, under the indexing model, the degree of media's counter frames varies with the political framing of the elite officials (Bennett, 1994; Zaller & Chiu, 1996). The indexing model follows Gramsci's hegemony perspective that considers framing process as a static top-down domination. In order to realize the goal of this study of mapping out the interactive process of framing contest, the cascading activation model and the integrative model are also reviewed for building up my own theoretical framework.

### **The cascading activation model**

Entman's cascading activation (2004) is similar to the indexing model because it also emphasizes the elites' influence on news organizations. Yet, cascading activation just takes the journalists' agency into consideration selectively, which means that they are not passive sounding-boards of the elite's voices and can actively participate in the framing process. They can selectively choose to reproduce, reject or highlight certain elite frames. The cascading activation describes a pattern that the ideas and thoughts like a waterfall spreading from the White House down to each level of the system. The model also predicts why and to what extent are the counter frames held by the lower levels of the system are ignored or contested against by the elite frame. There are three key elements in this cascading model: hierarchy, network association and cultural resonance. Hierarchy notes the unequal (highly stratified ability to promote the spreading of frame) framing power. "Government" dominates over the highest level and has the strongest ability to decide which schema to activate and promote the distribution of their thoughts. Following that are other elite networks that work outside the core executive network in Washington, such as the ex-government officials and think tanks. The lowest level is the journalists and news

organizations whose frames partially rely on the upper level. Journalists are not passive actors that directly adopt elite frames. Therefore, there's a probability of emerging counter frames are going to be ignored here. Entman (2003) regards public opinion, which he defined as public poll or indicator, as a dependent variable. He thinks it is difficult for the public opinion to influence the elite. He even says that spreading ideas higher, from lower levels to upper, requires extra energy—a pumping mechanism (p.420). The second key element is network association, emphasizing that the frames transmitted between different levels are not accurate replicas. Individuals are “cognitive misers” (Iyengar & McGuire, 1993) that have rooted schema in mind and have different understanding about the same frame. When the elite frame spreads to the lower level, it activates individuals' mental associations and gains different interpretations. The further a frame is transmitted in the cascading system, the more it deviates from its origin. This is related to the third elements: cultural resonance. Cultural resonance explains to what extent individuals understand, select or contest the elite frames depends on how much the message is culturally resonant to those individuals (Gamson, 1992)

In the case of Abu Ghraib, two articles present two total different models. In the “None Dare Call it Torture” (Bennet et al, 2006), even though enough evidence has supported U.S. soldiers intentionally tortured the terror suspects (the “torture” frame), the leading U.S. media chose to follow Bush government's abuse frame and declared that the incident was only an “isolated abuse” event conducted by low-level U.S soldiers. Bennet concludes that the incident fits the best with the indexing model. The media indexed the limited challenges of the issue inside the policy cycle, allowing for the dominant position of government's “abuse” frame. However, in the “some dare call it torture” (Rowling et al, 2011) the framing of Abu Ghraib actually follows the theory of cascading activation. It is found that Bush government actually had great challenges from Democrats, and the media

had not index the policy cycle directly. The media chose to echo some frames (such as abuse frame) instead of others (such as torture) depending on the degree of frame's cultural resonance. In other words, the media tended to highlight frames that protects U.S national identity.

Although both indexing and cascading model address the press-state relationship by pointing out the power of the state over the media, the biggest difference between the two models is that indexing emphasizes a precise replication of elites' standpoints in media coverage while frame contestation in the media are decided by elite discords. The cascading model points out that journalists who are for the cascading model select and highlight specific aspects of elite frames. To what extent journalists adopt elite frames depends on factors such as cultural resonance, motivations, elites' power and strategy. In this research, cascading modeling is more applicable to the test of the influence flow between different levels of social actors.

### **An integrative approach**

The indexing and cascading activation model mainly focus on the relationship between the state and the media while there's a lack of attention to the relationship between the public and the state/media. Although cascading activation model admits that public opinion may feed back to the state, Entman (2004) regards the public opinion as a dependent variable which is passive and manipulated by the elite in the cascading flow. Yet, as illustrated in part of the hegemony section, this study regards framing as a dynamic process. To fill in this gap, Matthes (2012) proposes an integrative approach and looks at the entire framing process. He concludes four important principles of analysis in the framing process: frame competition, frame selection and modification, frame dynamics, and frame consistency. These four principles are extremely important in guiding this study.

With the guidance of the above four principles, Matthes' integrative approach maps out all the involved social actors (political actors, media actors and citizens as actors) in the framing process that should be studied and he conducts research at various communication levels like "the communicator level, the news content level, and the effects level" (Matthes 2012). Matthes' research project pays attention to how political elites discuss and build the frame, how journalists reframe the elite ideas and how these ideas affect and be affected by citizens' judgment. This study is going to incorporate the principles of Matthes' integrative approach into Entman's cascading model and create my own theoretical framework

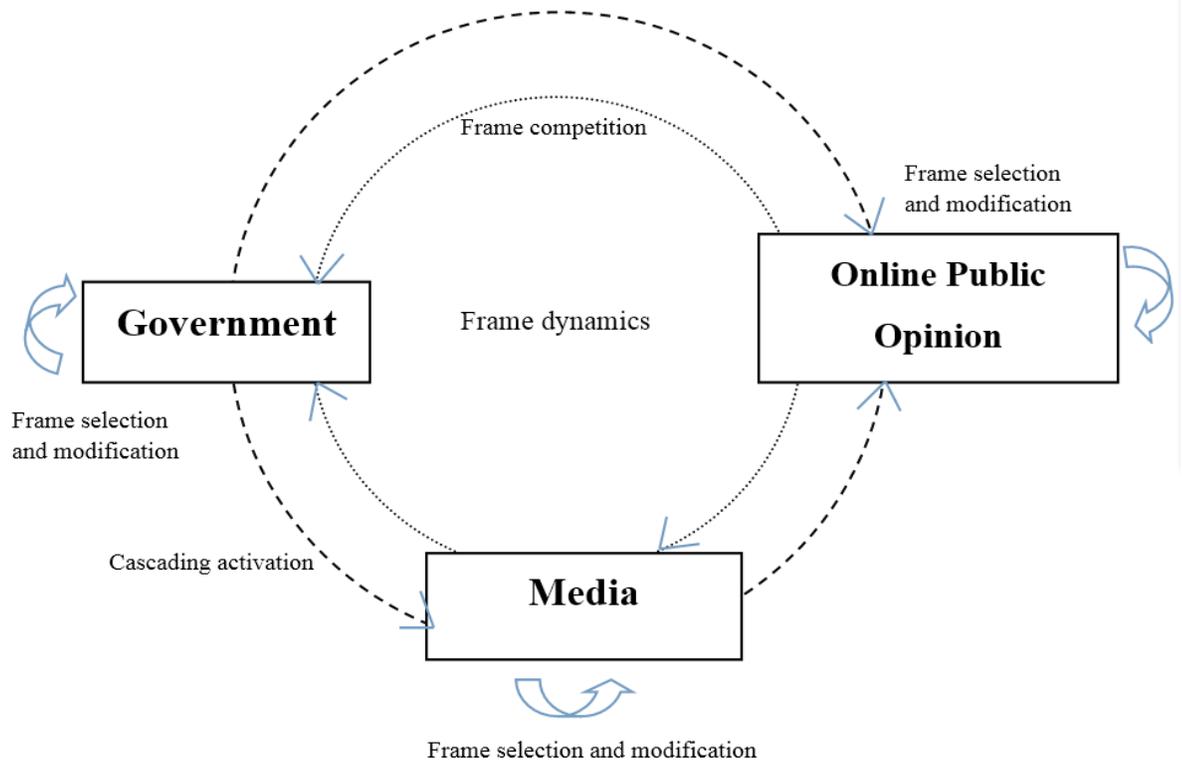
#### **THEORETICAL FRAMEWORK AND RESEARCH QUESTIONS**

The basic question of this article is how social actors' perceptions over environmental issues are formed and shaped through their interactions in the public arena? In other words, the study aims to map out the framing dynamics of PX issue. Figure 1 shows the conceptualization of this interactive process.

The three important actors are government, media actors, and the online public. As illustrated above, there are four principals, that is, frame selection and modification, frame competition, frame consistency and frame dynamics. First of all, each social actor in the political elites among the journalists or the public has the autonomy to select, highlight and ignore some frames. They can incorporate the selected frames into their own cognitive map to create their own frames. In the media frame-building process, journalists are exposed to different frames and will choose the frames that are most resonant to their understanding (Callaghan & Schnell, 2001). The elite influence as well as various external factors such as journalistic norms, cultural resonance and sponsor activities coexist to shape media

discourse. Similar to journalists, the audience frame has also been proved to be discordant with the elite or media frame in some circumstances (Pan&Kosicki, 2001).

Figure 1 Theoretical framework



Secondly, because framing effect depends on the repetition of a constant pattern, it is crucial for a frame to be consistent overtime. Therefore, we should look at the frame building and selection within each group of actors and ask the following questions:

RQ1: How do the governments frame PX issue and to what extent are the counter frames maintained or changed across an extended time period?

RQ2: How do the media frame PX issue and to what extent are the counter frames maintained or changed across an extended time period?

RQ3: How do the public frame PX issue and to what extent are the counter frames maintained or changed across an extended time period?

Thirdly, framing dynamics which suggests that framing is a dynamic process underlining the back and forth influence between social actors. The government's frame can be organized in media coverage and transmitted to the public. Reversely, the public opinion also may be grasped by the political leaders.

Finally, frame competition is common in public deliberation, which is full of ideological contests as Pan and Kosicki (2001) has already pointed out. The frame competition principal is embedded within frame dynamics. Each political actor tries to exert their influence over others and strategically struggles over the interpretation of an issue; framing is regarded as their strategic action to maintain their participation in policy making process. Connecting this frame competition principle with the cascading activation, the framework in this study suggests that the frames possessed by government can cascade down to the media. Yet, during this process, journalists have the autonomy to select and highlight specific aspects according to the elite frames. To what extent journalists adopt elite frames depends on these factors such as cultural resonance, motivations, elites' power and strategy. However, different from cascading activation's claim that the public opinion is a dependent variable relying on government's and media's frame, the public's role in this framework is uncertain. The public may selectively accept certain part of the government or media frame or maintain a counter frame. Therefore, it is worthwhile to examine how the three groups of actors interpret the frames and understand why some frames are accepted and others are opposed (Carragee & Roefs, 2004). Under this tradition, the study asks the following set of questions:

RQ4: How is the discourse between the government, the media and the public contesting and changing over time?

RQ4a: To what extent do the media frames compete or interact with government's frame?

RQ4b: To what extent do public frames compete or interact with governments' frame?

RQ4c: To what extent does public frame interact with the media's frame?

## Chapter 4: Method

This chapter mainly introduces the methodological principles of this study. It starts from addressing how data are collected and then moves on to the core of the framing study, that is, identifying the frames of the PX issue. The study adopts the framing package approach and deduction and induction methods to identify the frames. Then, it concludes three pairs of counter frames. The final section of this chapter addresses specific coding strategies, in which coded variables are also explained and listed.

### DATA

This study aims to examine the frame contest between government, varied media channels and the public over PX issue. Therefore, two sets of data have been collected. The first set is media coverage on PX issue. A search of Duxiu database shows there were 299 articles mentioning “PX” from March 18 to April 18. Duxiu database has one of the most comprehensive Chinese mainstream news reports that store all the mainstream news coverage. March 18 is chosen as the starting date for collection since it is the first day that Maoming Daily began its propaganda about PX projects.

The second set is public opinion. As one of the largest and most popular micro-blogging services in China, Sina Weibo (a Twitter-like social media) is chosen as the platform to collect public opinions. The number of Chinese Internet users has reached 618 million, among which 45.5% (281 million) are using Sina Weibo (China Internet Network Information Center, 2013). Sina Weibo accommodates a variety of social groups from grass-roots to celebrity users where institutional accounts and individual accounts are labeled differently, making it a suitable representative of public opinions.

The time period for public opinions’ collection is from March 30 to April 18. Fifteen messages on weibo were collected from 5 p.m. to 6 p.m. each day when there is not

enough 15 messages during this time, the data collection time can be extended to 11 p.m. of the day). March 30<sup>th</sup> has been chosen as the starting day because it is the day when the protest against Maoming PX project happened. Before March 30<sup>th</sup>, there were only a few messages on weibo related to Maoming PX project. The specific daily collection time (from 5 p.m. To 6 p.m) is chosen based on the experience of researchers in the marketing field. They know a lot about people's tweeting habit. The marketing studies show that the peak of retweeting occurs around 5 p.m. and that of clicking-through is at noon and 6 p.m (Zarrella, 2013). This phenomena is reasonable since 5-6 p.m. is the rush hour when people are coming back home from work place, Users are 181% likely to be on Twitter when they are commuting. Moreover, the phenomenon that lots of users who mainly use mobile devices instead of using computers to log in Twitter, also add to the above argument (Copper, 2013). For Weibo users, the pattern is similar since users are active from 5 p.m. to 8 p.m.. The number of reproduction as well as comments increase after work. A total number of 266 weibo messages have been collected.

It is necessary to mention that on April 1<sup>st</sup> and 2<sup>nd</sup>, no public opinion data was collected since there was no weibo users mentioning PX at all. Part of the reason lies in the government censorship. Micro-blogging like Weibo has been considered as a liberal tool, its functions of distributing free speech and contributing to collective action in the cyber environment has caused some challenge to the central government (Yang, 2009). However, its power has been constrained by censorship. Chinese government has a long tradition of "prepublication preview" and setting up "postpublication monitoring system" (Zhao, 1998 : 37). And the technical characteristics of Internet extended the government censorship system into cyberspace. Apart from the well-known great firewall that China's government set up to block Chinese people's access to western websites such as Facebook, Twitter and Youtube, the government also applied strict censorship to domestic Internet

which is executed by domestic Internet providers. In order to keep their license for operation, the Internet content providers are required to monitor, delete their customers' information or even cripple an account when they find there is something politically wrong. Sina Weibo also has to meet these requirements. It set up a department of a thousand people to deal with "harmful" information on weibo (Fu, Chan & Chau, 2013; Feng & Guo, 2013).

Past western literature has been interested in deciphering the intention of Chinese government's censorship and it has been well accepted that the censorship is conducted so as to "maintain the status quo of the current regime" (King, Pan & Robert, 2013). There are two theories about public opinions. One is the state critique theory and the other is collective action potential theory. The former one holds that the state blocks all negative criticism toward its leadership and polices and makes the presentation of public opinion to be favorable to its leadership. However, the latter one argues that government fears the expressions that have the possibility to lead to collective action since collective action may threaten the current regime. The study by Kin et al strongly supports the second theory. They find that messages are censored not based on whether they criticize or favor the state's policies. Sometimes, both of these two types of messages are blocked if they show the sentiment of protests. The protest words are considered as a threat to the state.

The censorship of PX follows the collective action potential theory. As indicated by Kin et al that "a large increase in online volume is a good predictors of censorship when the online information is associated with events related to collective action, e.g., protests on the ground" (p.328). Maoming PX issue also started from an offline protest by local residents. At the same time, messages and pictures that may be facts or rumors were spread on weibo. When the protest happened, there should have been a sharp increase in the volume of posts on weibo. However, from March 30 to 31, only a limited number of weibo messages existed. This is a sign of censorship. The strictest censorship occurred from April

1 to 2 when a sub-protest happened in Guangzhou, the third largest city in China. The fear of the occurrence of similar protests nationwide may be the reason why the government chose to block all posts under the keyword of PX from April 1 to 2.

## **CONCEPTUALIZATION OF THE IMPORTANT TERMS**

### **FRAME**

#### **Where to find frames?**

The bottleneck of framing studies is “where to find frames and how to identify them in the text” (Reese, 2001). This question, together with the question of “what is frame” is what framing research has focused on most. There is no ultimate answer to it. However, a series of approaches have been developed to get closer to the answer. First of all, Gamson and Lasch (1989) raised a framing package approach when they examined the political culture of social welfare policy. They suggest that framing is an organizing principle that is usually displayed as framing package which is composed of different signature elements (or can be called “framing devices”) that “mutually support and reinforce each other” (Gamson & Lasch, 1983:398). The package includes two segments of devices. The first half suggests some basic structures which are used to understand issues such as exemplars, metaphors, catchphrases, depictions and visual images; the second half is reasoning and justification devices, which analyzes the cause and remedy of an issue. It includes roots, consequences and some principles. This approach has been adopted in this study. Another approach is “the list of frame” approach developed by Tankard (2012). Tankard suggests that a news frame consists of a list of specific elements or what he calls “framing devices”. In this approach, a list of framing devices should first be identified to examine certain issues (e.g., headlines, subheads, photos, figures, leads, selection of quotes, ect). Although this approach does not contribute to the framing package approach, its five steps to do “a

list of frame” research helps identify frames and take subjectivity out of frame identification, which is very useful to this study. The steps include: (1) Clearly define the frame range; (2) List out a series of possible frames; (3) Develop keywords, phrases and symbols to identify each frame; (4) Use the frames developed in the above as categories to conduct coding in the content analysis.

### **Government frame**

The government frame refers to the central party’s or various Chinese central government departments’ perspectives on PX issue. Although after the media market reform in 1990s that required all media institutions to follow market rules and take responsibility for their own profits and losses, the major responsibility of some media still remain as publicizing the state’s will. The national official newspapers examined in this study belongs to this kind. They are nationally distributed central party organs or official newspapers that belong to central government departments (e.g., Xinhua News Agency, People’s Daily, Guangming Daily and Economic Daily). Since they are the mouthpiece of the central party and government, those national official newspaper can do well in representing central government’s will. Therefore, in this study, the frames of national official media are used to symolize government frame.

### **Media frame**

The media frame here refers to all other newspapers apart from national official newspapers. It focuses on the general media coverage on PX issue. At the same time, this study takes the internal variety of newspapers’ categories into account and differentiates different types of newspapers based on its attributes in the analysis. The detailed category will be illustrated in the coded variables section later in this chapter.

## **The frame of online public opinions**

The frame of online public opinions frame refers to general netizens' perspectives on PX issue. This study refers Sina Weibo user's opinions on the topic.

## **Frame interaction**

As illustrated in the literature review, framing cares about the process that social actors interact to form an understanding of the world. In the operationalization of frame interaction, this paper concerns (1) to what extent a group of actors' frame is swayed or changed because of espousing another group's frames, and (2) to what extent a group of actors' frames is similar to those of other groups.

## **Frame competition**

Framing is a competition of meaning interpretation by social actors. Frame contestation falls in somewhere between two extreme status: a complete domination of one frame and a close contest between competing frames. The former one is "frame domination" and the latter is called "frame parity" (Entman, 2012:418). A meaningful contest requires a frequent present of at least two coherent frames. To operationalize the idea of frame competition, the study has introduced Entman's idea of "counterframe". According to Entman (2003), counter frame establishes "a complete alternative narrative" (p.418) including a story of problem, cause and remedy that holds a comparable magnitude and resonance with the political elites' frame. Therefore, the degree of contestation is evaluated based on the presentation of count frames.

## **POTENTIAL FRAMES FOR PX ISSUE**

The unit of analysis is news articles or weibo messages. The frames are identified through an integrated induction and deduction process that follows the "a list of frame" rules created by Tankard (2012) and the "framing package" (Gamson & Lasch, 1983). The

definition of framing in this study follows Entman's (1993) According to him, framing is to highlight certain aspects of an issue. It is composed of four important elements: problem definition, casual interpretation, moral evaluation, and treatment recommendation. In this study, moral evaluation has been excluded since it is not suitable in the PX case.

After a preliminary review of the data and literature, three pairs of frames and counter frames have been found repetitively mentioned in news article and weibo data (see Appendix A): (1) popularization of science ( "science" frame for short in the rest of this thesis) and public accountability; (2) progress and regulation; (3) riot and protest. The three pairs of frame and its opposing frame are developed with the aim of testing the extent of frame competition. It is important to clarify that the author of this study thinks that the counter frame (e.g. the public accountability frame) is the better one. The author does not imply that it is more important or "should" be more emphasized than the science frame. However, what the author underlines is that the public accountability frame is a counter frame worthy of public discussion and media coverage (Bennet et al, 2006).

Science, progress and riot frame all follow the logic of scientific rationality (Beck, 1992). They highlight the scientifically low-toxic and safe nature of PX, promote the development of PX plant and blame the protesters. They answer yes to the question of whether PX projects should be built. Conversely, public accountability, regulation and protest frame constitute a critical perspective towards PX project. They offer a complete alternative narrative in framing the issue and emphasize that rather than rudely imposing PX construction, the central of PX issue should be how to build PX project. More specially, the issues in the process of building a PX plant, such as initiation and approval of the project, environmental impact assessment, and production are all important. Moreover, according to these frames, public interest and public participation are indispensable components.

### ***Science frame***

The study has applied both inductive and deductive approach to identify the frames. The science frame is completely inducted from the data set and represents the characteristics of risk society. This frame is formed as a reaction to the incalculable risk of PX. There is a confusion in the society brought by the hazard of PX. Science frame suggests that what is at issue of the PX controversy is the unnecessary but widespread panic and opposition against the PX manufacturing among the public. This frame conforms to the hegemonic logic that it is strategically right to transfer the responsibility of PX controversy to the public who are framed as ignorant and lack knowledge towards PX. In this way, the science frame helps to dispel the anger towards government who decides to construct the PX project and who should be responsible for safely managing the manufacturing process. Under this frame, protesters and antagonist groups who challenge the PX manufacturing become unreasonable, since there's no need to worry about the PX plant. In other words, this frame reproduces government's will and helps the government maintain the established social order. At the same time, more complicated problems about the PX production process and the problem of government openness are concealed under the science frame. The keys to identifying the frame include emphasizing the low toxic nature of PX, normalizing PX manufacturing by giving examples of other countries that built the PX plant around the neighborhood, suggesting that PX is safer than automobile exhaustion, praising that Tsinghua students are safeguarding science.

### ***Public accountability frame***

Gamson and Modigliani's (1989) develops public accountability frame when studying the framing of nuclear power. The public accountability frame in the nuclear study suggests that the official confusion over radiation release shows the officials are hiding truth from the public. In the PX case, as a counter frame of science frame, public

accountability frame addresses that the locus of PX issue lies in public dismay of the government. The government is responsible for the issue. In order to solve the problem, the government should boost up its credit and, allow more room for public participation in social issues.

### ***Progress frame***

The progress frame is a very common frame when the authority reports news about science and technology. Progress frame reflects the common belief in American culture that scientific advancement will lead to social progress (Nisbet et al., 2003; Weaver, Lively & Bimber, 2009). In Gamson and Modiglian's (1989) study on framing nuclear power, the progress frame considers nuclear power as a technical development that can bring economic benefits to the public. It defines that people who resist nuclear power are in an "irrational fear of progress and change" (p.4) because they only see the problems and ignore the benefits that go along with the change. This frame supports the development of nuclear power and declares that it is necessary and inevitable. In the PX case, progress frame also talks about PX in terms of the society's commitment to technological development and economic growth. It also suggests that the PX project will bring job opportunities to the area, indicating that China has a high demand of PX and the local PX manufacturing will help lessen China's reliance on PX imports from Japan, South Korea and Singapore.

### ***Regulation frame***

Regulation frame is developed from a study on nanotechnology (Weaver, Lively & Bimber, 2009) that claims some nanotechnic products in the market may have bypassed the regulatory scrutiny and may cause harm to consumers. Government regulation is employed to protect the public. In the PX issue, the regulation frame claims that the locus

of lies in government's failure to supervise and manage the operation of PX project. Government, not the public, should take major responsibility. As we can see, there is a difference between science frame and regulation frame. The science frame advocates the low toxicity of PX issue while regulation frame emphasizes the importance of taking the overall evaluation of PX project into account including technical and financial factors as well as environmental, economic and social influence. This frame advocates that without a strict management and regulation system, any project can bring harmful results to China.

### ***Riot frame***

The riot frame is directly borrowed from Hackett's (1984) study of social protest and media. It describes the demonstration as a conflict between a group of lawbreakers and the society. "Riot" is the usual phrase used to describe lawbreakers' behavior. In the PX case, a typical narrative of a riot frame starts from a calm anti-PX protest march, which then turns into violent riots caused by a small group of lawbreakers (Ye, 2014). Later, in order to protect social order, the police that stands for lawful behaviors are involved in the violent clashes. At the end of the narrative, the riot is put down and lawbreakers are punished.

### ***Protest frame***

The protest frame is also developed from Hackett's study (1984). In this frame, the demonstration is described as a conflict between protesters and powerful institutions. Different from the riot frame in which protesters are treated as lawbreakers, those demonstrators are regarded as a legitimately political force and they express appeals that need serious consideration. Apart from the above elements in Hackett's protest frame, the protest frame also highlights the police's violent control of the protesters and criticizes government's spread of protest information of the PX issue,.

## **CODING STRATEGY**

Following the research design in Bennet et al's "None Dare Call it Torture" (2006), the study first develops a stricter coding strategy and identifies one dominant frame and secondary frame in each article. Dominant frame is defined as the frame that receives the most mention within each story. It is a frame that embraces the main idea of the story (Iyengar, 1990). Subsequently, the study develops a merged coding. The coding merges six frames into two. Science, progress and riot frame are re-coded into a large science frame. Public accountability, regulation and protest frame are merged in to a large public accountability frame. Therefore, three pairs of counter frames have been rescinded into one large pair of science and public accountability. Finally, the study develops a looser coding to examine the extent of counter frame. This coding treats the dominant and secondary frames as equal. Wherever a frame is presented, it is coded. This measurement includes three items: (1) regulation and public accountability are both mentioned; (2) either regulation or public accountability frame is mentioned; (3) neither of the two frames is mentioned.

Apart from the above frames, two other variables are also coded based on news content. *Quote from public opinion/newspaper*. Each news article has been coded to examine whether it includes quotes from the public (e.g., quotes from laypersons, netizens, local residents, or the public opinion polls). Similarly, each weibo has been coded to see whether it mentions media coverage or includes a link to a news article.

*Originality*. Originality measures the extent of originality of each news article. It includes the three items: originality, reproduction and reprint. Originality means that the article is completely written by this newspaper. Reproduction refers to that the article is reproduced from the news report of other media institutions. It may synthesize or cut down

the content of that news report. Reprint means that the newspaper directly publishes news article from other newspaper without making any changes.

Subsequently, since the collected 266 news articles are from 165 newspapers, the study then codes the following variable based on newspapers' attributes.

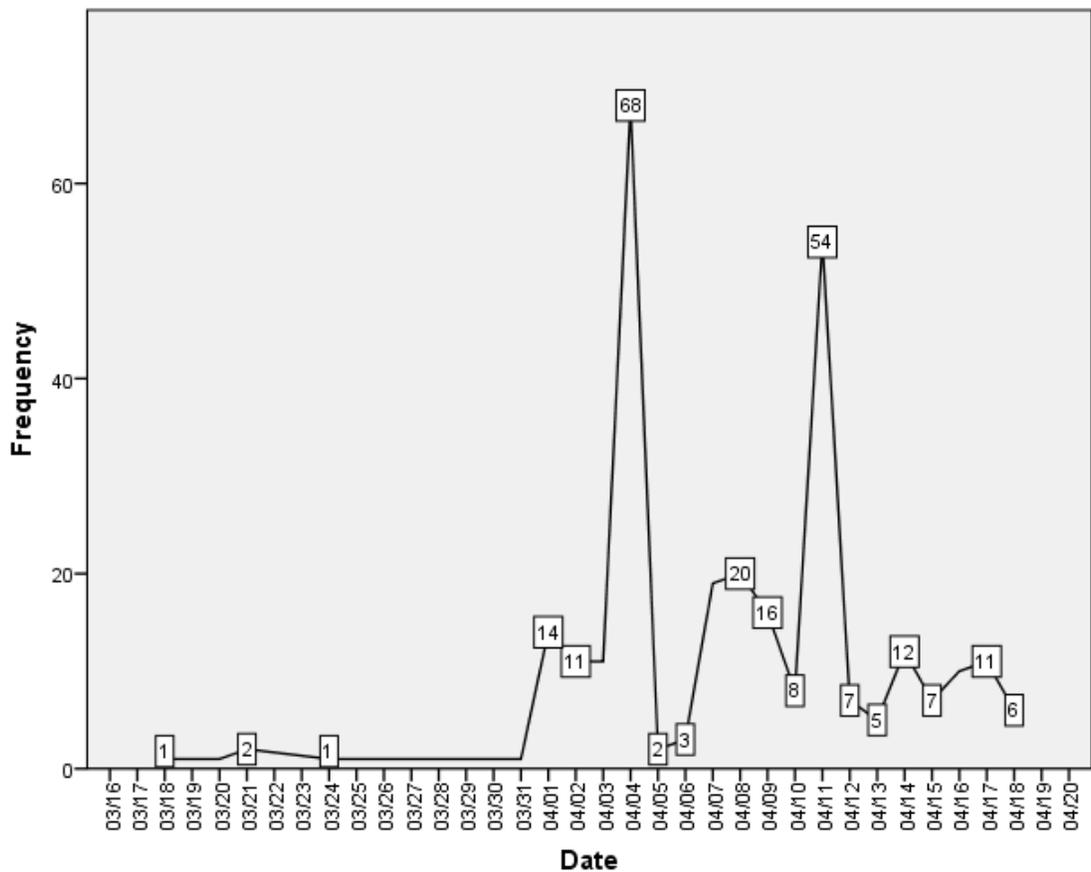
*Typology of newspaper.* Five groups have been developed: national official media, provincial official newspaper, municipal official newspaper (or below), metropolitan newspaper, and professional newspaper. National official media are the "official mainstream" (Winfield & Peng, 2005), which are directly run and operated by the central government. Since this group is considered as the mouthpiece of the party and government, the study uses the frame of this group to represent central government's will. The second and third group are official newspaper at the level of province or municipality (or below). The fourth group is metropolitan newspaper. Since the media market reform in the 1990s, all media institutions have been required to follow market rules and take responsibility for their own profits and losses (Zhao, 1999). Metropolitan newspaper emerged at that time to better compete in the media market. The last category is professional media, which mainly focus on issues related to environment, science, law and so on. The study also develops a merged typology in order to better examine the relationship between government, media and the public. The first group is national official media which represent government's voice. The second to the fifth group are merged to represent the overall media frame.

Finally, the study codes a time variable: *Phase*. This study develops from four time periods and codes the phase when the news article is published. Phase I is from March 18 to 29; Phase II is from March 30 to April 3, Phase III is from April 4 to 11, Phase IV is from April 12 to 18.

The design of the four phases is based on their frequency distributions (See Figure 2). As is shown, media's focus on PX issue can be grouped into four periods. Phase I

(March 18 -29) is the introduction stage of PX issue when the coverage of the PX project began to frequently appear in the media. The Phase II (March 30-April 03) is the growth period. Maoming anti-PX protest happened on March 30, and the government officials clarified on April 01 that the project was still at the stage of science popularization. Phase III (April 04-11) is the maturity stage, when the coverage and discussion of this issue reach the peak. There are two news coverage submitted from April 4 to April 11. Phase IV (April 12-18) is the declining stage when the volume of news coverage remains at a comparatively low level. It symbolizes the PX issue is gradually losing public attention.

Figure 2 Frequency of news coverage on PX between March 18-April 18



## **INTER-CODER RELIABILITY**

The author and another journalism graduate student coded 10% of the data together. The second coder is also familiar with framing approach, but is kept from the purpose of this study. The author has coded the rest 90% of data alone. The percentage agreement, Krippendorff alpha, Scott's Pi and Cohen's Kappa, were all calculated to estimate inter-coder reliability based on a random sample of 10% of total cases for media and 10% of total weibo separately. The latter three measurement all accounts for similar value, therefore, the study choose to report the number of Krippendorff alpha only. The coding of dominant frame receives a comparatively low Krippendorff alpha at 0.78, yet it lies in a satisfactory range (Krippendorff, 2014). The coding of merged frame increase the reliability to 0.92. The Krippendorff's Alpha for counter frame, secondary frame, typology of newspaper and originality are all high, within the range of 0.85 to 0.92. Although the alpha for quote is low, however, its high percentage agreement confirms that it has the acceptable reliability (see detailed reliability numbers in Table 9).

## **LIMITATION OF RESEARCH**

While the research design has maximized the reliability of this study by employing a standardized procedure to discern the frames, some limitations still exist, especially in the external validity and generalizability. As illustrated in the background of this study. Maoming PX case is only one of the PX controversies in China. The interaction pattern between social actors may have already formed in earlier PX cases. Also, there must be some similarities and differences in the frame dynamics between those PX cases. Therefore, examining the Maoming PX case without a comparison with the past incidents is partial. Secondly, the PX case is a distinctive case concerning environmental issues that took place in a specific historic period in China when social transformation was taking place. Therefore, the PX case may be too China-centric and the theoretical arguments may

not hold very well in different political and cultural systems. Thus, the frames and framing pattern concluded in this study should be tested in some similar cases of other countries to strengthen its generalizability.

## **Chapter 5: Result**

The beginning of this chapter gives an overall understanding of the media and government's (Table 1) focus on PX issue across time. The main part of this chapter center around the research questions. It first responses to RQ1&2, examining the distribution of government and media frames overtime separately, addressing the extent that media and government's frame are constant or has internal conflict during the four phases. Subsequently, interpretive analysis has been applied to answer RQ4a: the interplay between government and media frames. The originality of news coverage has also been referred to support the finding. Finally, the findings move on to the ones related to online public frame. After describing the change of online public frame overtime (RQ3), the study applied interpretive analysis on the frame competition and interaction between the online public opinion and government/media (RQ4b & RQ4c). The quotations by media and the online public are also coded to strength the conclusion.

### **THE GOVERNMENT AND MEDIA'S FOCUS ON PX ACROSS TIME**

Table 1 shows a detailed distribution of new coverage in four time periods by media type. In Table 1, 90% of news articles in Phase I (March 18-29) come from municipal official newspaper. Since this is the propaganda period for Maoming PX project, the 9 articles in this period are all published on Maoming's local official newspaper, Maoming Daily. In Phase II and III, the majority of the news articles still come from Metropolitan newspaper (56.2%). 32.4 % of articles at Phase II are published on municipal official newspaper. Professional newspaper (5.4%) and national official newspaper (5.4%) remain at a low focus on PX. But compare with Phase I, national official newspaper has an increase in paying attention to PX issue. And the above patterns in Phase II continue in Phase III.

This result shows that, compared with municipal official newspaper and metropolitan newspaper, the national official media has a slow reaction in reporting the issue.

Phase IV shows a total different story when national official newspaper increases sharply and become the dominant group in reporting PX issue with a percentage of 41.4 % among the total coverage. The national official newspaper not only increases in percentage, but also in frequency. The provincial and professional newspaper increase too, yet, the metropolitan newspaper has a huge decrease. Therefore, even though national official paper responds to the issue in a slow pace, it has the longest focus on this issue. When PX issue began to fade out in metropolitan and municipal newspaper, the national official newspaper kept paying attention to it

Table 1 Frequency of Newspaper Coverage by Attribute in Different Phases (%)

Phase	Attribute						N
	National	Provincial	Municipal	Metropolitan	Professional	Others	
I	0	0	90.0	0	10.0	0	10
II	5.4	0	32.4	56.8	5.4	0	37
III	7.9	7.9	18.9	53.7	11.6	0	190
IV	41.4	8.6	17.2	15.5	13.8	3.4	58
Total	41	20	67	132	33	2	295

**Note:**  $\chi^2(9, N = 295) = 41.417, p < .000$

### GOVERNMENT FRAME

Table 10 (See Appendix B) directly responds to RQ1. Out of expectation, national official newspaper has almost equal coverage of science and public accountability frame (48.8% and 51.2%). More specifically, in the stricter coding, science frame has the same percentage with public accountability frame (39%). But the progress frame (9.8%) which is under with merged category of science frame appeared less than regulation frame (12.1%) which is under the merged coding of public accountability. According to the

counter frame coding, 58.5% of the total national official newspaper's coverage mentioned both of the counter frame, only 17.1% did not mention counter frame at all. In this study, the frames of national official media is considered as frames of Chinese government. Therefore, it is interesting that Chinese government keeps a balanced voice between science frame and its counter frames.

### **MEDIA FRAME**

Totally different from the pattern of coverage in national official media. Table 11 (See Appendix B) shows that the non-national media mentions far more science frame (68.9%) than public accountability frame (31.1%). According to the stricter coding, the distribution of dominant frames explains how this came through. The science is the dominant frame accounts for 34.6%. Following that is riot frame (26.4%) which is also under the merged category of science. The science frame, riot frame, and regulation frame all exceed their counter frames. In other words, the media is dominated by a scientific rationality when reporting on the PX issue.

The last section in Table 11 describes media's use of counter frame. Almost half of the articles (46.1%) mention both the regulation and the public accountability frame. 20.9% mention one of public accountability or regulation frame. And only about one third (33.1%) do not mention any of the two frames at all. This result shows that although the science frame is dominant in news coverage, there is a certain amount of opposing frames.

Study further divide the newspapers into six categories based on their attributes which shows inner variations of frame use between different types of media. Table 2 shows that among the six categories, only in professional newspaper, public accountability frame exceeds science frame. The professional media reports public accountability frame (27.3%), science frame (24.2%) and progress frame (24.2%) on similar percentage.

Professional newspaper which represent a scientific community covered a great amount of articles using social rationality frame (public accountably, regulation, protest), this is also an interesting phenomenon. For the metropolitan newspaper, the dominant frame is riot frame (39.4%). And the only one protest frame article is published among all the media coverage.

Table 2 Cross-tabulation of Dominant Frames and Media Types (%)

Media Type	Dominant Frame						N
	Science	Progress	Regulation	Public accountability	Protest	Riot	
National official paper	39.0	9.8	12.2	39.0	0.0	0.0	41
Provincial official paper	50.0	10.0	10.0	25.0	0.0	5.0	20
Municipal official paper	49.3	7.5	4.5	23.9	0.0	14.9	67
Metropolitan paper	27.3	3.8	4.5	25.0	0.0	39.4	132
Professional paper	24.2	24.2	9.1	27.3	3.0	12.1	33
Other paper	50.0	0.0	0.0	50.0	0.0	0.0	2
Total	104	24	19	80	1	67	295

Note:  $\chi^2(25, N = 295) = 70.003, p < .000$

## THE INTERPLAY BETWEEN GOVERNMENT AND THE MEDIA

This section is written as a respond to RQ4a, which looks at the frame competition and interaction between the government and media.

### Phase II

Table 3 shows that in Phase II- IV (Phase I is not present because no national newspaper covered PX issue in Phase), national media kept a balanced volume in mentioning the merged pair of counter frame. The first two national official media that report on Maoming PX issue are People’s Daily and Xinhua News Agency, two leading official media in China. The People’s Daily is considered as “the organ of the Central Committee of the Chinese Communist Party” (Zhou & Moy 2007:86). Xinhua News

Agency is Chinese state news agency. Both of them adopted a public accountability frame. The article of People's Daily is an editorial titled "Work More Closely to Defuse Anxiety Over PX", published on April 2 which is the fourth day after Maoming protest broke out. The article first criticized that Maoming residents' concerns over the potential environmental damage of PX project are understandable, but prejudiced and irrational. However, the central argument of that commentary followed the public accountability frame. The inaccessible of information on PX resulted in repugnance and anxious attitudes was the reason that PX projects repetitively encounter public opposition among the nation. The article wrote that the without a bottom-up public participation as well as interactions between the government and the public, the to-down propaganda would always be interpreted as a manipulation on public opinion. As solutions, People's Daily suggested that, local government should pay more efforts on interactions with the public, such as inviting public representatives for a spot investigation visit to PX projects in the initiation stage of the PX project and allowing the local residents to participate in the environmental impact assessment .The Xinhua News Agency's article was published one day after People's Daily's editorial. It described a successful case of advancing PX plant in Singapore that wins public trust. Comparatively, in Phase II, the non-national newspapers adopted an equal percentage for science and public accountability frame, with the later accounts for a little more. In this stage, their focusing of issue was Maoming local government's press conference. Thus, inside the public accountability frame, the non-national official newspapers were mainly transmitting two pieces of message: first of all, the project was still in the very early planning stage and there was no timetable yet for construction; more importantly, the construction would not start before consensus was reached.

### **Phase III**

Table 3 shows that in Phase III, 74.3% news coverage by non-national official media use the science frame, the rest 25.7 % adopt public accountability frame. Comparatively, national official newspaper adopts slightly more public accountability frame (53.3%) than science (46.7%). 32.6% of the non-national newspaper in this stage (not reported in the Table) were using the riot frame (under the category of merged science frame). This is the period (especially on the day April 04) when the most riot frame articles lie in. The content of riot frame news articles is highly homogenized. A typical narrative of a riot frame starts from a calm anti-PX protest march, which then turn into violent riots caused by “a small group of lawbreakers”. Later, in order to protect the social order, the police that stands for lawful behaviors were forced to be involved in violent clashes with the protesters. In the end of the narrative, the riot is put down and lawbreakers are punished. The riot frame also clarifies rumors regarding the March 30 Maoming protest which includes: 5 people died in the protest, armed police officers beat the protesters violently, transportation and information were blocked in Maoming, photos of military tanks driving into town to conquer protestors and photos of bodied protesters lying in street.

April 2 to 4, Tsinghua University students and netizens conflicted over the entry for PX on Baidu Baike, a service similar to Wikipedia in China, which is called as “Battle for the Defense of Science” by People’s Daily. Therefore, in the middle of Phase III, started from April 6, the focus of issue switched from the offline anti-PX protest to the online battle. Both national official media and non-national media took advantage of the online conflict to arise a new round of coverage on PX issue. The forward, again, is People’s Daily. April 6, only three newspapers covered PX issue, People’s Daily is one of them. It published a 3289-word “deep-reading” article. The dominant frame of this article is “science”, first described the contest between netizens who keep changing the toxicity of

PX from ‘low’ to ‘high’ on Baidu Baike and Tsinghua students, who defend the PX definition in Baidu Baike entry, repeatedly revising toxicity from ‘high’ to ‘low’ (Ma et al, 2014). Subsequently, the article introduced a secondary frame, public accountability, which addressed a reflection on PX issue. It concluded that the public’s PX sensitivity came from concerns over the management of industrial safe production. Therefore, government has the responsibility to improve its supervision over the production process. It also emphasized that, “the series of events relating to PX production is not a simple matter of science. Rather, it is a matter of “democratic and scientific decision making” (Ma et al, 2014). Thus, the government should improve its public communication mechanism. This article also included a Figure that comprehensively analyzed the public’s concerns over PX and the remedy for it, where the government, industry, society and public are all responsible groups.

The other two news articles published in April 6 are both reproduced from the People’s Daily article, published on two metropolitan newspapers. Yet, they only coverage the contest on Baidu Baiku battle. They praise Tsinghua students for defending the truth, however cut the reflection part out. So these two articles are pure “science” frame. Later in this period, starts from April 7, there are 20 news articles on Tsinghua students’ PX entry defense, 18 of them adopted a science frame, only 1 of which use regulation frame, and 1 use public accountability frame. In the last day of Phase III, Xinhua News Agency published an article, adopting regulation frame as a dominant frame to address the gap between Chinese and foreign governments’ safety and environmental management ability on enterprise. It has a second frame of science highlight the necessity and security in developing PX project. A series of non-national official newspaper reproduced Xinhua Agency’s article. It is worth to mention that, most of them switched the frames, using

science as the dominant frame and regulation as the secondary frame. But there is also a few newspaper adopts only the regulation frame, and cut of the science frame.

Table 3 Cross-tabulation of merged dominant frame and national-party media or not by different phases (%)

Phase		Merged dominant frame		N
		science	public accountability	
Non-national official media	I	100.0	0.0	10
	II	45.7	54.3	35
	III	74.3	25.7	175
	IV	55.9	44.1	34
	Total	175	79	254
National official media	II	0.0	100.0	2
	III	46.7	53.3	15
	IV	54.2	45.8	24
	Total	20	21	41

#### Phase IV

Phase IV is a decline stage where there's no new focus of PX issue and the coverage is kind of repetitive of the former three phases. Even though Xinhua Agency published an article on Japan's experience in manage the security of PX project, it did not sent up too much spray. Not too many newspaper reprint or reproduce this article.

Table 4 Originality of News Article by Media Type (%)

Media Type	Dominant Frame			N
	Reprint	Reproduce	Original	
National official paper	9.8	4.9	85.4	41
Provincial official paper	30.0	45.0	25.0	20
Municipal official paper	29.9	26.9	43.3	67
Metropolitan paper	24.2	47.0	28.8	132
Professional paper	18.2	15.2	66.7	33
Other paper	0.0	100.0	0.0	2
Total	Original		Original	295

Note:  $\chi^2(10, N = 295) = 60.238, p < .000$

Table 5 Originality of News Article in Different Phases (%)

Phase	Originality of news article			N
	Reprint	Reproduce	Original	
I	50.0	0.0	50.0	10
II	16.2	16.2	67.6	37
III	25.8	43.2	31.1	190
IV	13.8	17.2	69.0	58
Total	68	98	129	295

Note:  $\chi^2(6, N = 295) = 43.651, p < .000$

The originality of the news article showed in Table 4 and 8, transmit a deeper understanding over the interplay between the government and the media. The 85.4% of articles are original which shows the comparative independent perspective of national official media. It is also the source that other media reproduce or reprint from. Professional media has a certain degree of independence because of it has 66.7% original article. However, municipal official newspaper provincial is not so good, of which original writing is less than a half (43.3%). Metropolitan newspaper (28.8%) and provincial newspaper (25%) are the worst. The dominant influence of national official on other media is clear.

#### **ONLINE PUBLIC OPINION FRAME**

In the merged coding, the public's represented a quite close frequency for the science and the public accountability frame in Phase II. But overall, the public accountability frame was more often mentioned than the science among the public. Especially in Phase III, the disparity between the two frames was as wide as 32.5%. It is

worth to mention that Phase III was the phase when government and non-national media propagating with science frame. Thus, the opposing attitude in the public is apparent.

**THE INTERPLAY BETWEEN ONLINE PUBLIC AND GOVERNMENT/MEDIA**

This section is organized as a respond to RQ4b and RQ4c, which concentrate on the frame competition and interaction between the government and media

**Phase II**

Since Weibo data was collected from the date that PX protest happened on March 30. Thus, the starting phase for weibo data is Phase II (March 30-April 3). Public opinion frames are more diverse than media frame, and there is even a certain percentage of other frames in each phase. In the merged coding (Table 6), Phase II has a quite close frequency for the science and the public accountability frame. But overall, the public accountability frame is more often mentioned than the science. Especially in Phase III, the disparity between the two frames is as wide as 32.5%.

Table 6 Cross-tabulation of Merged Frames in Different Phases for Public Opinion (%)

Phase	Merged dominant frame			N
	Public accountability	popularization of science	other	
II	38.1	40.5	21.4	42
III	61.7	29.2	9.2	120
IV	48.1	39.4	12.5	104
Total	140	93	33	266

The information diffusion on a social media platform as Weibo is faster than traditional media such as newspaper. Different from newspaper that first covered the anti-PX protest on April 1, two days after the protest, Weibo has instant reaction to the protest as soon as it broke out on March 30. For a stricter measurement (Table 7), the majority of

weibo in Phase II (23.8%) adopt the science frame, 21.4% adopt protest frame, and 21.4% use other frames.

Table 7 Cross-tabulation of Dominant Frames in Different Phases for Public Opinion (%)

Phase	Dominant Frame							N
	other	science	progress	regulation	public accountability	protest	riot	
II	21.4	23.8	9.5	7.1	9.5	21.4	7.1	42
III	9.2	22.5	3.3	25.8	33.3	2.5	3.3	120
IV	12.5	26.9	10.6	22.1	25.0	1.0	1.9	104
Total	33	65	19	57	70	13	9	266

Analyzing the frames in Phase I by day, the study finds that the first day is dominant by protest frames (See Figure 4). The protest frame directly supports the anti-PX protest, it described protest as a conflict between the public and the suppressor (the police and the government behind them). Weibo using protest frame can be seen as a part of online protest. These weibo are expressing dissonant towards PX project, spreading protest information and photo to counter government information censorship. In March 31, protest frame totally disappear, due to information censorship probably. This speculation is made because in the whole day of March 31, there is only 12 weibo with the keyword of PX. It is even worse for April 1 to 2 do not have any Weibo about PX. And on April 3, there is an increase volume of Weibo on PX, but most of them are in the perspective of science frame.

### Phase III

In Phase III, public accountability frame has a huge increase of 23.8% compare with Phase II, and it becomes the dominant frame in this stage. Follow that is regulation frame, occupies 22.5%. Science frame drops to a third place (Table 5).

In April 4, a main focus can be identified in the public opinion is the criticism of the Global Times' editorial in April 1. It was written in an extreme science frame, headlined "Did Xiamen Set Bad Precedent in Refusing Chemical Plants?" condemning that Xiamen residents' act of kicking out a potential PX project in 2007 set a bad example of irrational opposition towards chemical projects. However, most of public responses were countering the Global Times with the public accountability frame. They advocated that the Xiamen protest was a fighting for public rights. They also criticized that there is a lack of open channels for public complaints. For example,

Is Xiamen irrational? Violent? Are there any channels except going for a walk (sanbu) to make the local residents' voice to be heard?

In April 6-8, public accountability frame dominates when the focus of public opinion is Tsinghua student and netizens' conflict on Baidu Baike editing. Although the media have grasped the opportunity of the Baidu Baike issue and made a spectrum of propaganda on PX's low toxicity, yet the public opinion on Weibo did not buy it. They keep criticizing the government's poor credibility and its lacking of transparency. Below are two typical quotes from the weibo:

Now the government credibility is in bankruptcy, no matter how hard you explain the low toxicity of PX or the harmless of biotech foods, we people just do not believe.

Same with PX, water is safe in Europe and America, formula is safe in Europe and America, so does air and food, but when it comes to mainland China, water and air is polluted, formula becomes melamine-contaminated, all due to the regulation problem and the non-transparent public information, so do not take to me that the PX is safe!

From April 9 to 15, regulation frame starts exceeding public accountability frame. The public challenge the scientific definition of low toxicity with social rationality. They direct the attention to a detailed discussion on the overall impact of PX as a chemical and

the management in production process, emphasizing the importance of regulation. Typical examples are shown as below:

Although scientists believe that controlled inhalation of toxic chemicals will not damage our health, long-term interactive mechanisms between some toxic chemicals like PX and human bodies are not completely understood and studied. Not to mention that the construction teams of PX plant may not be able to control the release of PX.

Students of Tsinghua University are annoying since they have the desire to curry favor by claptrap. Although PX is of low toxic, no one knows the long-term effect of PX pollution. Have they done research on the resident exposed to inhalation of PX? Have they considered the toxicity of the chemicals accompanied with the produce of PX? The students basically have no conscience.

In April 11-12, the focus shift to the issue that excessive benzene have been found in Lanzhou (a city in northwestern China) tap water, the public naturally connect this incident with PX, suspecting that the excessive benzene may due to the pollution of chemical projects similar to PX. Regulation frame is again highlighted. For instance,

It is worth to mention that in the same period, the media reports are dominated by science frame that cites the successful construction of PX case in Singapore and Japan to emphasize the necessity and security to develop PX projects. It seems that the public has little affected by media coverage.

#### **Phase IV**

The quotation cross Table 10 below further reveals the relationship between media and the public. It shows that newspapers have much fewer quotations from public than the reverse. In Phase II, there is no quotation at all, but there is a little increase in Phase III and IV. Among the six types of media, professional media and national official media quote public opinion the least, accounting for 12.5% and 14.6% of their total coverage separately. Provincial official media and municipal (or below) quote the most, 30% and 28.8% of their total coverage. Followed that is metropolitan newspaper (20.5%). In comparison, weibo

reference to newspaper more frequently and increase at each stage. From Phase II to IV, the citation of newspaper has increased from 11.9% to 40.4%.

Table 8 Mentions of Quotes from Media/Public Opinion in Different Phases (%)

	Phase	Quotes from Media/Online public Opinion		N
		Present	Not Present	
Newspaper	I	10.0	90.0	10
	II	0.0	100.0	37
	III	25.3	74.7	190
	IV	24.1	75.9	58
	Total	63	232	295
Online public opinion	I			
	II	88.1	11.9	42
	III	60.8	39.2	120
	IV	59.6	40.4	104
	Total	172	94	266

Note for newspaper:  $\chi^2(2, N = 295) = 12.810, p < .01$

Note for online public opinion:  $\chi^2(2, N = 295) = 12.012, p < .01$

## CONCLUSION

With the cooperation between government and the media (RQ4a), government enforce its frames over the media. Media select and emphasize the science frame to weaken public accountability frame. For example, in Phase II, the two leading official media in China, People’s Daily and Xinhua News Agency, set the definition for PX within public accountability frame. The non-national official media in this stage stroke a balance between science frame and public accountability. Also, the public accountability frame led non-national official media to transmit the information of Maoming local government’s press conference. This cascading flow is more evident in Phase III when the issue focus moved to the online editing war. Again, People’s Daily first reported this issue. Although People’s daily employed science frame as its dominant frame, it also took public accountability

frame into consideration. However, when non-national official media reproduced People's Daily's news, they mostly reported them within the extreme science frame without mentioning public accountability at all. In Phase IV, the government's influence declines. This is concluded from the finding that even though the science frame increased among the national official media, there was also an increase in its counter frame and public accountability in non-national official media. The interpretive analysis shows that, when reproducing national official media's news, the non-national official media tended to give prominence to the counter frame rather than science frame. The originality of news article also supports this decline of cascading influence, since original articles produced by non-national official media sharply increased by 38% from Phase III to IV. Therefore, in the decline stage of PX issue, non-national official media had more autonomy over reporting and relied less on the government frame.

RQ3 pays attention to public frame. In the merged coding, the public has represented a tendency of supporting science and public accountability frame in Phase II. Overall, public accountability frame was more often mentioned than the science one among the public. Especially in Phase III, the disparity between the two frames was as wide as 32.5%. It is worthwhile to mention that Phase III is the phase when government and non-national media propagated within science frame. Thus, the opposing attitude in the public is apparent.

RQ4b and RQ 4c plan to explore the interplay between the public and government/the media. 88% of weibo in the Phase II, 60.8% in Phase II and 59.2% in Phase IV responded to the news. However, the public seem to have received little influence from the media or government's frame. The public even opposed the media and government's frames all the time. However, this resistance should be considered as a self-loop of the online public community because non-national official newspaper included only a few

voices from the public that only accounted for around 25% of all voices during the period. National official newspaper cited even fewer public opinions. Therefore, although the public are not passive recipients, their opinions are hard to be heard by the media, or even the government.

## Chapter 6: Discussion

The basic question of this article is how social actors' perceptions over an environmental issue are formed and shaped through their interactions in the public arena? The article should map out the framing dynamics of PX issue. The detailed research questions focus on how different social actors such as government, the media and the public frame PX issue? How are these frames maintained or changed over time? Furthermore, how does the frame competition unfold between these social actors?

The result shows that the government favored public accountability when it started to address the PX issue. It stroke a balance between science frame and accountability during the period. The media, as a whole, were dominated by science frame. The media frames were cascaded from the government. During this cascading process, journalists had the autonomy to emphasize or neglect certain frames. Interestingly, they did not let the non-national official media form a strong force to counter-frame the government voice. Instead, they even deleted the critical reflection on PX issue when reproducing national official media's coverage. In comparison, the public opinion showed mature counter-frames among the four phases. The public constantly responded to media/government voices based on social rationality. The detailed discussion over the findings are unfolded in the following sections.

First of all, it is interesting that national official media keep a balanced voice between science frame and its counter frames but some non-national newspaper like metropolitan newspapers did not. Chinese government tended to minimize people's criticism of current regime, protect government's authority in some conflict and advocate blaming the group that kindles revolts (Gang, 2009). However, in this case, national party media which have long been criticized as being dominated by governmental will show that

the conflict over PX issue is due to the lack of enough communication with the public. National official media like People's Daily and Xinhua News Agency consider the local government should take major responsibility for the PX issue. This finding can be explained by the hierarchical relationship between Chinese central and local governments. In China, the local governments (at provincial and municipal level) are subjected to the central government's authority because the central government makes economic and social development plans and allocate resources and fiscal budget. The structure of Chinese media is similar to that of the politically administrative structure. Yidi jiandu (cross-regional supervision) is an example. It suggests that when reporting a local issue, a national official media, or media from any region (out of the administrative power of local government) may carry out the most critical coverage, because they are out of political pressure from the local government (Deng, 2006). The PX issue examined in this study is a local issue in the municipal city, Maoming. Therefore, it is reasonable that national official media act as the forward in criticizing the local government in the PX issue but some metropolitan or municipal official media did not. Secondly, the cascading activation model provides a better explanation for the power influence between national official media and non-national official media than indexing model does. From the indexing perspective, when there exists an evident dispute or different perspectives in the policy circle, the media will magnify these diverse perspectives in news coverage. Robinson (2002) has raised similar argument. He emphasizes the importance of "policy certainty" or the unity of voice within the government. When governments at different levels have conflicting opinions about an issue, it is possible that outsiders may put forward opposing viewpoints to influence their actions. However, when those governments share a united perspective, there is almost no media criticism because the criticism will not make much difference. However, the cascading activation suggests that the media apply government's

voice in news coverage instead of directly indexing the administrative perspective. In this study, national official media treated science frame and its opposing frame as equals. Yet, non-national media marginalized the critical frame and mainly adopted science frame especially in Phase III. Therefore, compared with indexing model, the cascading activation better maps out the reality of PX issue.

Compared with the indexing model that originates from hegemony, cascading activation is developed to highlight the independency of media workers in reporting social and political issues. However, the autonomy of Chinese media is limited. Their adoption of national official media's frame has little relationship with their cultural resonance. They may do this due to self-censorship. This speculation is possible because non-national official media ignored the opposing frame (public accountability). For example, although People's Daily adopted science frame when first reporting on the Baidu Bake editing battle in Phase III, it clearly highlighted the regulation frame. However, when some non-national newspapers reproduced People's Daily's article, they cut out the regulation part and took the science frame. Yet, there was more room for non-national media's reporting as the event developed in the mature (Phase III) and decline period (Phase IV). On April 10<sup>th</sup>, when reproducing Xinhua News Agency's article, many non-national media coverage singled the regulation and public accountability frame part out and deleted the science part. The volume of counter frame grew bigger as the issue went on.

Finally, the public are not passive hearer of government or media voice, yet they are still at the bottom of influence hierarchy. Although the public cited media coverage frequently, especially at the early stage, they mainly followed the media's focus of issue, but not affected by media's arguments with the change of issue focus or topics, but not arguments. When citing media report, the public often added critical comments and showed support to the counter frames. There was an imbalanced influence power between

government, the media and the public. For example, the non-national official newspaper only mentioned the public's opinion in a few situations and the national official newspaper mentioned even less. Therefore, the PX case is partially consistent with cascading activation. The cascade of information fails to reach the public since they do not buy the media's frame. However, just as Entman notes "spreading ideas higher, from lower levels to upper, requires extra energy—a pumping mechanism", it is hard for the public opinion to reversely impact elite political leaders or media workers.

It is worth mentioning that professional newspapers which represent the scientific community cover a number of articles using social rationality frame (public accountability, regulation, protest). When the public discussed about the "toxicity" of PX, they also started from scientific evidence. This shows the inter-penetrating of social and scientific rationality, both of which are vital in discussing issues, especially the environmental issues in the risk society.

## Appendix A: Coding Rules for Frames

Frame	Problem definition	Causal interpretation	Treatment recommendation
Science	The public's irrational attitude generates unnecessary opposition and disputation towards the PX project	The public's ignorance, lack of scientific knowledge about PX issue; The protestors clung to their selfish individual interests	Propagate scientific facts about PX to the public. Try to spread the ideas that PX is "low toxicity", safe, little impact on the environment, is a common chemical industry project worldwide
Progress	PX project would bring huge economic benefits to the city and increases public and national interests	China is facing a widening shortage of PX supply, depends on huge energy imports from Korea and Japan	Advance the PX project, increase the PX production capacity
Regulation	The pure scientific assessment on PX project is not enough, multi-dimensional influence and feasibility of the	The government fails to supervise and manage the operation of PX project. For instance, the environmental impact of assessment is not reasonable	Conduct an overall evaluation of a PX plant, including technical and financial aspect, as well as environmental, economic and social influence. The initiation, approval and the production process of PX plant must be in

	<p>project should be well considered</p>		<p>strict accordance with laws and regulations.</p> <p>The government should enhance supervision of the enterprise, implement strict environmental risk management to ensure safe production</p>
<p>Public accountability</p>	<p>The poor official credibility is the central issue in opposing PX project.</p> <p>No matter what the government says or does, good or bad, truth or lies, the public won't believe.</p> <p>The protest shows the public are fighting for rights.</p>	<p>The government lacks of information transparency on chemical projects, fails to listen to public opinion/complains, and former political corruption result in the public mistrust in government</p>	<p>The local government needs to improve disclosure requirements in the construction of such chemical plants, to build real communication channel with the public, and carry out the public's right to know and right to participate</p>

Protest	The government violently crush the protest, and block up passage of information	The coercive pressure from government	Support the protest against the PX project
Riot frame	The protest is a riot that caused by a small group of lawbreakers.	The protest began with a calm march, then degenerated into illegal or aggressive behavior by the lawbreakers	Call in riot troops and put down the violence. Impose administrative punishments in addition to detaining some lawbreakers

## Appendix B: Descriptive Tables

Table 9 Inter-coder reliability by variable

	Percent Agreement	Krippendorff's Alpha
Dominant frame	83.3	0.78
Secondary frame	93.3	0.92
Merged frame	93.3	0.85
Counter frame	96.7	0.95
Quote	96.7	0.65
Typology		0.89
Originality		0.86

Table 10 Dominant frame, merged frame and counter frame for the government

<b>Dominant frame</b>	N	%
Science	16	39.0
Progress	4	9.8
Regulation	5	12.1
Public accountability	16	39.0
Protest	0	0.0
Riot	0	0.0
<b>Merged frame</b>		
Science	20	48.8
Public accountability	21	51.2
<b>Mention of counter frame(regulation/public accountability)</b>		<b>%</b>
Both mentioned	24	58.5
Mention either of the two	10	24.4
None of the two is mentioned	7	17.1
Total	41	100

Table 11 Dominant frame, merged frame and counter frame for media in general

<b>Dominant frame</b>	N	%
Science	88	34.6
Progress	20	7.9
Regulation	14	5.5
Public accountability	64	25.2
Protest	1	0.4
Riot	67	26.4
<b>Merged frame</b>		
Science	175	68.9
Public accountability	79	31.1
<b>Mention of counter frame(regulation/public accountability)</b>		<b>%</b>
Both mentioned	117	46.1
Mention either of the two	53	20.9
None of the two is mentioned	84	33.1
Total	41	100

## References

- Anonymous. (2014, April 1). Guangdong Maoming PX project brewing 4 years without the EIA (environmental impact assessment). *Oriental Morning Post*. Retrieved from <http://news.sohu.com/20140401/n397542119.shtml>
- ASP, B. (2006). Material Safety Data Sheet.
- Beck, U. (1992). *Risk society: Towards a new modernity* (Vol. 17). Sage
- Beck, U. (2006). Living in the world risk society: A Hobhouse Memorial Public Lecture given on Wednesday 15 February 2006 at the London School of Economics. *Economy and Society*, 35(3), 329-345
- Beck, U. (2009). *World at risk*. Polity
- Benford, R.D., & Hunt, S.A. (1992). Dramaturgy and social movements: The social construction and communication of power. *Sociological Inquiry*, 62, 36–55.
- Bennett, W. L. (1990). Toward a theory of press-state relations in the United States. *Journal of communication*, 40(2), 103-125.
- Bennett, W. L. (1992). *The governing crisis: Media, money, and marketing in American elections*. Palgrave Macmillan.
- Bennett, W. L. (1994). The news about foreign policy. *Taken by storm: The media, public opinion, and US foreign policy in the Gulf War*, 12-42.
- Bennett, W. L., & Lawrence, R. G. (1995). News icons and the mainstreaming of social change. *Journal of Communication*, 45(3), 20-39.
- Bennett, W. L., Lawrence, R. G., & Livingston, S. (2006). None dare call it torture: Indexing and the limits of press independence in the Abu Ghraib scandal. *Journal of Communication*, 56(3), 467-485.
- Bennett, W. L., Lawrence, R. G., & Livingston, S. (2008). *When the press fails: Political power and the news media from Iraq to Katrina*. University of Chicago Press.
- Callaghan, K., & Schnell, F. (2001). Assessing the democratic debate: How the news media frame elite policy discourse. *Political Communication*, 18, 183–212.
- Carragee, K. M., & Roefs, W. (2004). The neglect of power in recent framing research. *Journal of communication*, 54(2), 214-233.
- Chong, D., & Druckman, J. N. (2007). Framing theory. *Annu. Rev. Polit. Sci.*, 10, 103-126.
- Cottle, S. (1998). Ulrich Beck, Risk Society and the Media A Catastrophic View?. *European Journal of Communication*, 13(1), 5-32.
- D'angelo, P. (2002). News framing as a multiparadigmatic research program: A response to Entman. *Journal of communication*, 52(4), 870-888.

- De Vreese, C. H. (2005). News framing: Theory and typology. *Information design journal+ document design*, 13(1), 51-62.
- Deng, Z. 邓正来(2006). 《焦点访谈》及其背后的结构性力量 Retrieved from <http://dzlai.fyfc.cn/art/80477.htm>
- Entman, R. M. (1993). Framing: Towards clarification of a fractured paradigm. McQuail's reader in mass communication theory, 390-397.
- Entman, R. M. (2003). Cascading activation: Contesting the White House's frame after 9/11. *Political Communication*, 20(4), 415-432.
- Entman, R. M. (2004). *Projections of power: Framing news, public opinion and U.S. foreign policy*. Chicago: University of Chicago Press.
- Entman, R. M. (2007). Framing bias: Media in the distribution of power. *Journal of communication*, 57(1), 163-173.
- Ettema, J. S., & Peer, L. (1996). Good news from a bad neighborhood: Toward an alternative to the discourse of urban pathology. *Journalism & Mass Communication Quarterly*, 73(4), 835-856.
- Forbes.(December 2014). Best countries for business. *Forbes*. Retrieved from <http://www.forbes.com/places/south-korea/>
- Gamson, W. A., & Lasch, K. E. (1981). The political culture of social welfare policy.
- Gamson, W.A., & Modigliani, A. (1989). Media discourse and public opinion on nuclear power: A constructionist approach. *American Journal of Sociology*, 95, 1-37.
- Gitlin, T. (1980). *The whole world is watching: Mass media in the making & unmaking of the new left*. University of California Press.
- Gramsci, A. (1971). Selections from the prison notebooks, translated and edited by Quintin Hoare and Geoffrey Nowell Smith. *London: ElecBook, transcribed from the edition published by Lawrence and Wishart, London*.
- Hackett, R.A. (1984). Decline of a paradigm? Bias and objectivity in news media studies. *Critical Studies in Mass Communication*, 1(3), 229-259
- Hertog, J. K., & McLeod, D. M. (2001). A multiperspectival approach to framing analysis: A field guide. *Framing public life: Perspectives on media and our understanding of the social world*, 139-161.
- Iyengar, S. (1990). Framing responsibility for political issues: The case of poverty. *Political behavior*, 12(1), 19-40.
- Iyengar, S. (1994). *Is anyone responsible? How television frames political issues*. University of Chicago Press.
- Iyengar, S. (1996). Framing responsibility for political issues. *The Annals of the American Academy of Political and Social Science*, 59-70.

- Iyengar, S., & McGuire, W. (Eds.). (1993). *Explorations in political psychology*. Durham, NC: Duke University Press.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica: Journal of the Econometric Society*, 263-291.
- Lawrence, R. G. (2000). *The politics of force*. Berkeley: University of California Press
- Leiss, W. Review of the book *Risk Society, Towards a New Modernity* by Ulrich Beck, online: *The Canadian Journal of Sociology on-line*, Retrieved from: <http://www.ualberta.ca/~cjscopy/articles/leiss.html> (accessed 20 December 2008).
- Li, J. (2014, April 05). People in Maoming and Shenzhen stage fresh protests over planned PX plant *South China Morning Post*. Retrieved from: <http://www.scmp.com/news/china/article/1465140/people-maoming-and-shenzhen-stage-fresh-protest-over-planned-px-plant>
- Lin, L. (October, 2014). State media say public anxiety over PX project is “unfounded”. *China Dialogue*. Retrieved from <https://www.chinadialogue.net/blog/6895-State-media-say-public-anxiety-over-PX-project-is-unfounded/en>
- Livingston, S., & Bennett, W. L. (2003). Gatekeeping, indexing, and live-event news: Is technology altering the construction of news?. *Political Communication*, 20(4), 363-380.
- Matthes, J. (2012). Framing Politics An Integrative Approach. *American Behavioral Scientist*, 56(3), 247-259.
- Molotch, H., & Lester, M. (1974). News as purposive behavior: On the strategic use of routine events, accidents, and scandals. *American sociological review*, 101-112.
- National Bureau of Statistics of China. (2014). Guangdong Province’s GDP. *National Data*. Retrieved from <http://data.stats.gov.cn/ks.htm?cn=E0103&zb=A0101&reg=440000>
- Nisbet, M. C., Brossard, D., & Kroepsch, A. (2003). Framing science the stem cell controversy in an age of press/politics. *The International Journal of Press/Politics*, 8(2), 36-70.
- Pan, Z., & Kosicki, G. M. (2001). Framing as a strategic action in public deliberation. *Framing public life: Perspectives on media and our understanding of the social world*, 35-65
- Reese, S. (2001). Prologue—Framing Public Life: A Bridging Model for Media Research. *Framing Public Life: Perspectives on Media and Our Understanding of the Social World*, 7.
- Reese, S. D. (2007). The framing project: A bridging model for media research revisited. *Journal of communication*, 57(1), 148-154.

- Reese, S. D., & Lewis, S. C. (2009). Framing the War on Terror The internalization of policy in the US press. *Journalism*, 10(6), 777-797.
- Rowling, C. M., Jones, T. M., & Sheets, P. (2011). Some dared call it torture: Cultural resonance, Abu Ghraib, and a selectively echoing press. *Journal of Communication*, 61(6), 1043-1061.
- Scheufele, D. A. (1999). Framing as a theory of media effects. *Journal of communication*, 49(1), 103-122.
- Shah, D. V., Boyle, M. P., Schmierbach, M., Keum, H., & Armstrong, C. L. (2010). Specificity, Complexity, and Validity Rescuing Experimental Research on Framing Effects. *Doing news framing analysis: Empirical and theoretical perspectives*.
- Tankard, J. W. (2001). The empirical approach to the study of media framing. *Framing public life: Perspectives on media and our understanding of the social world*, 95-106.
- Tankard, J. W. (2001). The empirical approach to the study of media framing. *Framing public life: Perspectives on media and our understanding of the social world*, 95-106.
- Tankard, James W., Jr. (2001). The empirical approach to the study of media framing. In Stephen D. Reese, Oscar H. Gandy, Jr. and August E. Grant, eds., *Framing Public Life: Perspectives on Media and Our Understanding of the Social World*. Mahwah, NJ: Erlbaum, p. 97 of pp. 95-106.
- The Information Office of Maoming. (March 31, 2014). *Maoming Daily*. Retrieved from [http://www.mm111.net/mmrb/data/20140331/html/3/content\\_2.html](http://www.mm111.net/mmrb/data/20140331/html/3/content_2.html)
- The National Development and Reform Commission. (2008, December). The Outline of the Plan for the Reform and Development of the Pearl River Delta (2008-2020). Retrieved from: [http://www.provost.cuhk.edu.hk/prvo/provost\\_media/academic\\_initiatives/PDR\\_Framework\\_Eng.pdf](http://www.provost.cuhk.edu.hk/prvo/provost_media/academic_initiatives/PDR_Framework_Eng.pdf)
- Thompson, E. P. (1991). *Customs in common* (p. 186). New York: New Press.
- Tuchman, G. (1978). *Making news: A study in the construction of reality*. New York: The Free Press
- Tulloch, J., & Lupton, D. (2001). Risk, the mass media and personal bioFigurey Revisiting Beck's 'knowledge, media and information society'. *European Journal of Cultural Studies*, 4(1), 5-27.
- Van Gorp, B. (2010). Strategies to take subjectivity out of framing analysis. *Doing news framing analysis: Empirical and theoretical perspectives*, 84-109.

- Van Gorp, B. (2010). Strategies to take subjectivity out of framing analysis. *Doing news framing analysis: Empirical and theoretical perspectives*, 84-109.
- Wang, X. (2014). Maoming conundrum: the difficulty of transformation behind PX issue. *China Business Journal*. Retrieved from [http://www.cb.com.cn/economy/2014\\_0405/1052607.html](http://www.cb.com.cn/economy/2014_0405/1052607.html)
- Weaver, D. A., Lively, E., & Bimber, B. (2009). Searching for a frame news media tell the story of technological progress, risk, and regulation. *Science Communication*, 31(2), 139-166.
- Weber, M. (1978). The distribution of power within the political community: Class, status, party. *Economy and society*, 2, 926-940.
- Wen, Y. (September 15, 2014). Discuss the balanced development of Guangdong with the case of Western Guangdong Maoming. *Guancha*. Retrieved from [http://www.guancha.cn/wen-yang/2014\\_09\\_15\\_267236.shtml](http://www.guancha.cn/wen-yang/2014_09_15_267236.shtml)
- Williams, R. (1977). *Marxism and literature* (Vol. 1). Oxford University Press.
- Winfield, B. H., & Peng, Z. (2005). Market or party controls? Chinese media in transition. *Gazette*, 67(3), 255-270.
- Ye, J. (April 3, 2014). 18 detained in protest over PX project. *BBC*. Retrieved from [http://www.bbc.co.uk/zhongwen/simp/china/2014/04/140403\\_china\\_maoming\\_protest.shtml](http://www.bbc.co.uk/zhongwen/simp/china/2014/04/140403_china_maoming_protest.shtml)
- Yu, Y., & Zeng, F. (2010). Digital Power: Public Participation in An Environmental Controversy. *China's Environmental Crisis: Domestic and Global Political Impacts and Responses*, 179-194.
- Zaller, D. (2013). How to get more clicks on Twitter. Retrieved from <http://danzarrella.com/infoFigureic-how-to-get-more-clicks-on-twitter.html>
- Zaller, J., & Chiu, D. (1996). Government's little helper: U.S. press coverage of foreign policy crises, 1945-1991. *Political Communication*, 13, 385-400
- Zarrella, D. (2013). *The Science of Marketing: When to Tweet, what to Post, how to Blog, and Other Proven Strategies*. Wiley Publishing.
- Zhai, I. (April 12, 2014). Science students embroiled in plant safety debate: Authorities play dangerous game by having people still studying at university act as experts. *South China morning post*. Retrieved from <http://www.scmp.com/news/china/article/1477045/science-students-embroiled-plant-safety-debate>
- Zhao, Y. (1998). *Media, market, and democracy in China: Between the party line and the bottom line*. University of Illinois Press.
- Zhou, Y., & Moy, P. (2007). Parsing framing processes: The interplay between online public opinion and media coverage. *Journal of Communication*, 57(1), 79-98.